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The Outlook

R.A.F. Recruiting

FIRST duty of a Service which is our First Line of Defence is to be always prepared. That task is now officially recognized as belonging to the Royal Air Force. In the old days, the Royal Navy had that honour, and it never let us down. It could always get the equipment it wanted, and sufficient men of the right type. It had the nation behind it, and thus it was easy for successive Governments to get the Navy Estimates through. The people realized the importance of the old wooden walls and their more modern equivalents.

But it is quite certain that the full implications of the transfer of responsibility to the R.A.F. are not appreciated by the general public. Hence there is apathy or complete indifference. We have done our best to draw attention to the shortcomings found in the R.A.F. at present, by publishing articles by Sir Philip Joubert, which have been extensively quoted in the daily Press. We follow up this week with an article by Air Commodore Howard-Williams, and a letter on the Correspondence page adds further views on a subject which is vital to the country.

Unless public awareness is created, little progress is likely. The Government will need strong prodding if tangible results are to be achieved, and full recognition of the needs of the R.A.F. is to be obtained. To that end we shall continue to devote space to a ventilation of the subject, and to publish views (including some which are not our own) and suggestions.

In the meantime, the Air Ministry must also do its share, and indications that this is realized was provided by the announcement that a team of serving officers and civilians is visiting R.A.F. establishments and units at home and overseas with a view to studying conditions and obtaining opinions. In due course the team will report to the Secretary of State for Air and, presumably, make recommendations.

Rockets to the Rescue

CONGRATULATIONS to our American friends on their successful rescue from the Greenland ice-cap of the marooned Air Force men who had spent nineteen days there, including Christmas. Three aircraft are left in the arctic snows, but the men are safe and well, thanks to the dropping of food, fuel and other supplies during their enforced "winterization trial."

When the first C-47 (better known in this country as the Dakota) made a forced landing, a B-17 tried to land nearby but itself came to grief. Attempts to rescue the two crews in a glider-snatch pick-up were unsuccessful, owing to the breaking of the tow line, and then there were three aircraft and three crews.

It began to look as if this sort of thing could go on indefinitely, with more and more aircraft piling up on the ice, and the U.S. Navy set off to the rescue with carrier-borne helicopters. That was too much for the Air Force. It would never have been able to hold up its head again if it had allowed the Navy to get the credit for the rescue, and ultimately the Air Force got the men away in another Dakota fitted with skis, and with rockets for assisted take-off. The carrier was still plodding her way towards the Greenland coast, and the helicopters were not brought into use.

The whole affair is not without its humorous side, now that the men are safe, but it might easily have ended differently. The U.S. Navy and Air Force are strongly contesting each other's claims to priority, the Air Force doubting the usefulness of carrier task forces, while the Navy is not impressed by the capabilities of the long-range shore-based bomber. As Mr. Forrestal, the American Secretary of Defence, pointed out in his recent report, both sides hold their opinions quite honestly, and indeed the decision must be a very difficult one to make, if a clear-cut decision is actually necessary. It appears more likely that in the end it will be a case of

carriers *and* long-range bombers, rather than a question of carriers *or* long-range bombers. In the meantime, the Air Force has avoided an ignominious intervention by the Navy in the Greenland rescue affair, and will doubtless make capital of the slowness of the carrier. But the rocket rescue *could* have failed, and then the carrier and its helicopters might well have won the day for the Navy.

Canada's Defence Plans

THE recent announcement by Mr. Claxton, Canada's Minister of Defence, that the Dominion proposes to spend on defence this year a larger sum, and undertake a vaster peacetime programme than ever in history, is an indication of the seriousness with which Canada regards the present world situation.

That Canada has decided to concentrate on the building under licence of one of the American jet fighters, although regrettable from the British point of view, is understandable when regarded from the broader aspects.

What is unfortunate, however, is the manner in which the announcement was made, which was such that it might well cause wrong inferences to be drawn. This is especially the case on account of the fact that one statement made by Mr. Claxton was not widely quoted on this side. "We still," he said, "think the Vampire is, in many ways, the best jet fighter in the world."

Doubtless Mr. Claxton had in mind the excellent characteristics of the Vampire in the matter of stability and manœuvrability at great altitudes. He will also have been aware that in other spheres the Vampire has proved itself remarkably versatile in that it has been developed as a long-range fighter, as a deck-landing fighter, and as a fighter-bomber equipped for ground-attack duties.

It is not to be expected that these represent the ultimate in development, and one may assume that de Havillands still have something up the Vampire sleeve, both as regards airframe and engine. Force is lent to this assumption by the recent release of information that a newer Goblin, the DGN.4, is in existence. The Goblin 3 gives 3,300 lb static thrust, so it is logical to assume that the new engine gives even more.

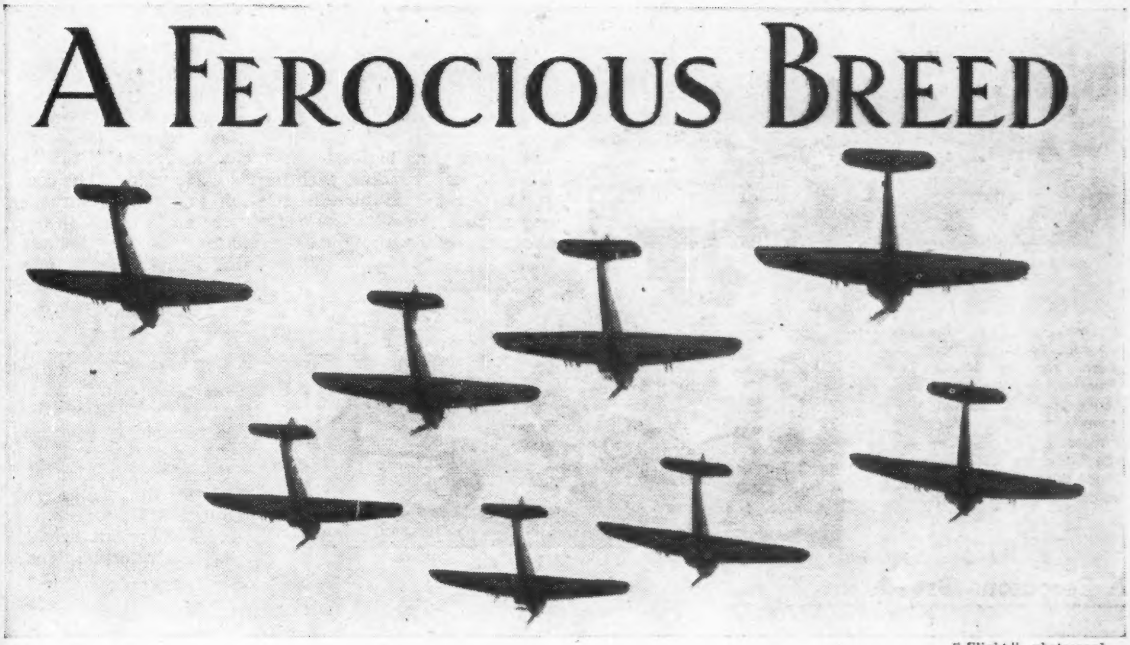
CONTENTS

Outlook	1
A Ferocious Breed	3
Don't Push Off Jack!	6
Civil Aviation News	7
'49 Filton Fashion	11
London Landmarks	14
Barracuda Come-back	16
Rush Job to Singapore	17
Here and There	21
New-Year Honours	23
Thoughts on All-Wing Transports	24
From All Quarters	25
Book Reviews	26
Correspondence	27
Service Aviation	28

Forthcoming Events page 22

STRATOCRUISER: Late this year the first of six Boeing Stratocruiser long-range airliners should be delivered from America for service on B.O.A.C.'s transatlantic run. Details of accommodation have not yet been settled, but a scheme has been prepared for sixty passengers in three cabins, with a snack bar, lounge and dressing rooms among the amenities. The Stratocruiser has a gross weight of 142,500 lb and is the civil counterpart of the B-50 bomber (Superfortress replacement), now going into service with the U.S. Air Force.

A FEROCIOUS BREED



"Flight" photograph.

A tight formation of Blackburn Firebrand single-seat strike aircraft of Naval Aviation epitomizes the excellent control demanded of all aircraft in this class. Unlike the later Blackburn S. 28/43, the present-day Firebrand was developed from a war-time fighter.

Hitting Power and "Toughness" Characterize the Modern Line of Single-Seat Strike Aircraft

FIREBRAND, Mauler, Skyraider—the very names command a healthy respect for the single-seater strike or "attack" aircraft now serving the Navies of Britain and the U.S.A. But the potency of these machines, and others of their category, is better expressed in terms of high-explosive and steel than in graphic nomenclature. Though remarkably compact, they are among the world's heaviest, most powerful and most versatile single-seaters, and are capable of delivering a devastating punch in the form of bombs, torpedoes, rocket projectiles or depth charges.

Before examining the features and operational characteristics of this aggressive brotherhood it is well to consider the reasons underlying the reversion to the single-seater layout. Use of the word "reversion" in this connection may well cause surprise, for it is not generally remembered that some of the earliest British torpedoplanes—truly the first of the Naval "strike" machines—carried only the pilot in addition to their war load. Of these, the Short Shirl and Blackburn Dart were two of the most successful. In the early days, however, the considerations governing crew provision (reduction of weight, to allow a full-size torpedo and a worth-while quantity of fuel to be carried) were very different from those pertaining in recent times. As design technique developed, torpedo bombers subsequent to the Dart were generally two-seaters (e.g., Ripon and Baffin) and the tendency was to increase fuel, navigational aids, etc., instead of augmenting the offensive load. It is true, in fact, to say that the actual war load (bombs or torpedo) was little improved for nearly 20 years, though the means of delivering it effectively were made progressively surer.

In the years preceding the war a vogue for three-seater "T.S.R." (torpedo-spotter-reconnaissance) machines had established itself, but, though economical and extremely versatile, this class, by reason of its bulk and low performance, proved unduly vulnerable to fighter and anti-aircraft opposition. The legendary Swordfish, or "Stringbag," showed, nevertheless, that under cover of darkness, or with adequate support, it could cause as much, or more, damage to enemy shipping and installations than vastly more expensive and elaborate types. A machine reproducing the esssential characteristics of the Swordfish (heavy load for low

The extent of the "finger"-type dive brakes and the stowage of the fuselage bomb are apparent in this stern view of the Martin Mauler.

Some degree of comparison is afforded by this collection of views showing British and American single-seat Naval strike aircraft. Reading diagonally from the Blackburn Firebrand (above), they are the Blackburn S.28/43, Westland Wyvern, Douglas Skyraider and Martin Mauler.

weight of over 16,000 lb, and has desirable deck-landing qualities.

Though certain Firebrand features are reproduced in a later prototype, built to Specification S.28/43, and unofficially dubbed "Firecrest," this machine, having been designed "from scratch," is far superior in performance and operational efficiency. Without external loads, the top speed is as high as 370 m.p.h. at 18,000ft, and the normal combat radius, with torpedo, 400 miles. The cockpit is situated so high in relation to the Centaurus 59 engine that the pilot has a 15-degree angle of vision over the nose—a factor equally important in dive bombing and deck landing. As on the Firebrand, dive brakes are fitted well forward on the upper and lower surfaces of each wing, though it will later be seen that American designers do not favour this disposition. The torpedo is slung beneath the fuselage and outboard provision is made for drop-tanks, two 500-lb bombs, rocket projectiles of various weights, or a pair of heavy guns.

A Ferocious Breed . . . . .

power and exceptional tractability) may yet be perpetuated in Naval air arms for anti-submarine duties, but the war proved quite conclusively, that if it were to survive in face of modern fighter opposition and A.A. defences, the Naval torpedo-bomber must have a greatly improved all-round performance, particularly in respect of speed, and present a smaller target.

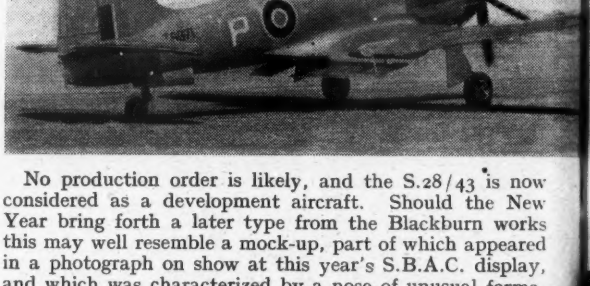
Improvements in navigational aids enabled the crew to be reduced to the pilot alone, and the Royal Navy, in its search for a suitable machine, hit happily upon the Blackburn Firebrand, originally conceived as a Naval fighter, and offering excellent possibilities of development. The type had been designed round the liquid-cooled Napier Sabre engine, but available Sabres were required for R.A.F. Typhoons, and conversion for the Bristol Centaurus radial was put in hand. The built-in armament of four 20-mm guns was retained, and provision made for alternative loads of a torpedo, bombs, or the newly developed rocket projectiles. Adaptation was by no means easy, especially as rigid deck-landing requirements were to be met, but the Firebrand torpedo-fighter (as the type was officially reclassified) evolved through various sub-types to the Mark 5a in service to-day.

War Load

Space does not allow discussion of other than those "functional" features which characterize the Firebrand as an example of a Naval strike aircraft. Alternative external "stores," to use British official terminology, are a torpedo, a 2,000-lb bomb load, or sixteen R.P.s with 60-lb heads. The "tin fish" is attached to a Blackburn torpedo or bomb carrier beneath the fuselage, and allows the fitting of the "Mat. 4" tail device to ensure directional stability in the air after release. The carrier is so designed that, when the undercarriage is retracted, the tail of the torpedo is lowered so that, in flight, the missile is parallel to the fuselage. Without this feature the height of the undercarriage would have been considerably greater.

Dive brakes, which limit the Firebrand's speed to approximately 350 m.p.h., are fitted on upper and lower surfaces of the mainplane. That these should increase the drag of the machine some 2-2½ times, without appreciably affecting its trim, is indicative of the thoroughness of wind-tunnel work at Brough.

By modern standards the Firebrand is not outstandingly fast, though without torpedo it achieves some 350 m.p.h.; but it is very manœuvrable, notwithstanding its laden



No production order is likely, and the S.28/43 is now considered as a development aircraft. Should the New Year bring forth a later type from the Blackburn works this may well resemble a mock-up, part of which appeared in a photograph on show at this year's S.B.A.C. display, and which was characterized by a nose of unusual formation, such as might contain a coupled pair of turboprops. A power plant of this sort would appear to be especially well suited to a Naval strike aircraft, in that very economical single-engined cruising can be reconciled with high performance at full power.

To a later specification (N.11/44) than the Blackburn S.28/43, Westland Aircraft, Ltd. submitted designs which were realized in the Wyvern T.F.1, a 22,000-lb, 455-m.p.h. machine of 44ft span, having a 3,500 h.p. Rolls-Royce Eagle flat-H engine and capable of handling a 20-inch torpedo, a 2,000-lb bomb, or eight 60-lb R.P.s. Careful attention to cockpit location and fuselage shape have allowed an exceptionally good view over the nose—superior, the makers claim, to that from any other single-engined aircraft in existence. A built-in armament of four 20 mm guns is specified. At the Farnborough display last year there was widespread speculation as to the possibility of fitting the Wyvern with the Armstrong Siddeley Python turboprop, delivering 3,670 shaft horsepower and over 1,100 lb static jet thrust, or the Rolls-Royce Clyde of somewhat lower output. These units would certainly appear to be well matched to the Wyvern.

Though this brief survey is primarily concerned with specialized single-seat Naval strike aircraft, it is appropriate to mention the formidable offensive loads which are readily carried by the Hawker Sea Fury and late marks of the Supermarine Seafire Naval fighter/bombers. The Seafire takes three bombs of up to 500 lb apiece, and the Sea Fury is capable of delivering twelve 60-lb R.P.s, two

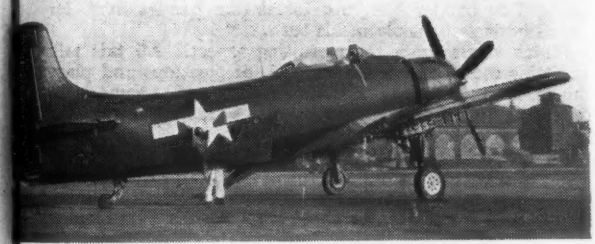
1,000-lb bombs, clusters of anti-personnel bombs, two 500-lb depth charges, flare containers, or "window" launchers. Another British Naval machine which, though primarily a fighter, has shown remarkable adaptability as a strike aircraft, is the de Havilland Sea Hornet F.20, a 470-m.p.h. twin-Merlin single-seater. Typical loads are eight 60-lb R.P.s or two 1,000-lb bombs. For the navigation of a Hornet long-range strike formation, the Sea Hornet N.F.21 two-seater is becoming available. This mark carries the offensive loads already mentioned, and is thus able to "have a go" with the rest of the attacking formation.

When it is considered that such loads are within the capabilities of relatively small deck-landing fighters, the impressive armament of the larger and heavier single-seaters, specifically designed for strike duties with the U.S. Navy, may—heavy as it is—not come altogether as a surprise. The two types under consideration (Douglas Skyraider and Martin Mauler) are certainly the most heavily armed single-seat attack aircraft ever built. Measuring 50ft in span, and having a gross weight of over 16,000 lb, the Skyraider AD-1 has a normal offensive load of 4,000 lb and a maximum of 6,000 lb. Two or three 2,000-lb bombs can be slung under the wings and fuselage as an alternative load to two or three torpedoes or three "Tiny Tim" rocket projectiles (11.75in calibre, length 12ft, weight 1,173 lb, penetrative power 3ft of reinforced concrete). Provision is made outboard for twelve 5-in "Holy Moses" R.P.s. A great variety of changes can be rung in the make-up of the armament load, and two built-in 20 mm guns are standard.

The Douglas Skyraider, as operated by the U.S. Navy, is claimed to have a range of over 1,500 miles. The projectile load is 4,000-6,000 lb

Fuselage Dive Brakes

Technically, one of the most remarkable design features of the Skyraider is the fuselage dive-brake installation. It should be borne in mind in this connection that the Skyraider, like the Mauler, was designed to replace not only the Grumman Avenger torpedo-bomber, but the Douglas Dauntless and Curtiss Helldiver specialized dive bombers, so that good diving qualities were stressed. The three rectangular braking surfaces (two on the fuselage sides and one beneath) are hinged along their forward edges and are extended by hydraulic rams. Without brakes the Skyraider has been dived from 20,000ft to 5,000ft at speeds approaching 500 m.p.h. and pulled out at 7 g.



The current version of the Skyraider (AD-1) has a Wright Cyclone R-3350 radial engine of 2,500 h.p. Of this model, 123 are on order, or have been delivered. Later models (AD-2 and AD-3) are improved in detail and of these, 356 will be delivered.

Though generally considered as a counterpart of the Skyraider, Martin's AM-1 Mauler is, in fact, a much heavier machine (21,000 lb gross weight) though differing little in dimensions. It was designed for operation from carriers of the *Midway* Class and is powered by a Pratt and Whitney Wasp Major R-4360 radial engine of over 3,000 h.p. A total of 210 Maulers is on order.

Armament of the Mauler (additional to four 20 mm guns) is similar to that of the Skyraider, with the bombs, torpedoes, or "Tiny Tims" slung under the fuselage and centre-section extremities (the fuselage bomb, of course, having displacement gear) and the smaller R.P.s being attached beneath the outer mainplanes. Dive brakes, of the intermeshing finger type, open along the top and bottom surfaces of the mainplane trailing edges and there is an additional perforated braking surface under the fuselage. Though the Mauler can be dived "clean" at some 500 m.p.h., the speed of descent is limited by the brakes to 350 m.p.h. When the "fingers" of the brakes are intermeshed they form a normal trailing-edge flap. The brakes can be fully applied in three seconds.

Having greater power than the Skyraider, and being generally of more refined design, the Mauler is said to be rather faster, having a level speed over 350 m.p.h. The windscreen has flak-resisting forward and side panels.

American Naval fighters, like our own, are readily adaptable for bombing and R.P. firing, and the Vought Corsair is known to be capable of carrying two "Tiny Tims."

Though it is evidently desirable that single-seat strike aircraft should ultimately be powered by turbojets, the propjet is likely to be favoured in the immediate future by virtue of its superior fuel economy. Unless bombs, torpedoes and rocket projectiles are stowed internally, however, this class of aircraft will remain vulnerable to fighter opposition.

H. F. K.

DON'T PUSH OFF JACK!

Reasons for Present Difficulties in the R.A.F.

By Air Commodore E. L. HOWARD-WILLIAMS, M.C., p.s.a., M.A. (Oxon), M.A. (Cantab), D.I.C. (London)

GREAT interest has been aroused by Sir Philip Joubert's articles on "Manning the R.A.F." (December 9th and 23rd). Here are the views of a Vice-President of the R.A.F. Association, expressed in his own particular style. The author commanded the R.A.F. Station at Blackpool during the war, where upwards of 40,000 airmen and airwomen were in residence.

WHAT a remarkably fine tradition the Royal Air Force achieved, in peace and war, within its short span of life! Lord Trenchard's dictum of quality rather than quantity may in truth be held to have saved civilization at the Battle of Britain (1940 A.D.). The present Chief of the Air Staff, Lord Tedder, treads the same straight path, more aware than anyone how awkward are the problems he is set.

To begin with, the Cabinet has decreed that the R.A.F. is to be our First Line of Defence, a lead swiftly followed by the State Department in Washington when they gave pride of place to the United States Air Corps. Thus the Royal Navy is no longer "our sure shield," a role it so brilliantly played until 1939. The honour, and the responsibility, of holding this island base secure against invasion by air and sea, now belongs primarily to the R.A.F., with a proper measure of priority for its more pressing needs.

Fortunately, the old days of inter-service ambitions and rivalries are dead. The fighting Services nowadays have become a trinity in which any one of them is master only in its own element, and a servant in the others. For all that, in martial operations, most of which are nowadays combined, balances have to be struck, which fact accounts for the pride of place now accorded the Air.

A Lesson from the Past

Looking back through the years, when the Royal Navy had the same distinction, what did it do? It built up a wave of public opinion to support its policies; it hand-picked its officers and men from among the finest stock in the country; and it imposed an exemplary standard of discipline which stood it and the country in good stead.

Can the same be said about the Royal Air Force to-day? To begin with, how well is the R.A.F. case appreciated in the country? I venture the view that not one person in a hundred knows of the Cabinet decision; the Air Council has made it public it cannot secure the type of men it wants for as long as it wants them; and many among us have good cause to be concerned lest standards of discipline and ability should deteriorate for reasons outside the control of all ranks.

What are prime among those reasons?

First, the National Service man, fine and British though he may be, is of limited use to a highly technical Service in which fitters and radar mechanics take years to achieve the necessary high standard of skill and experience.

Secondly, the pay of officers and men is years out of step with the laws of demand and supply; and grossly inequitable when compared with the "rate for the job" of the highly organized and largely static Trade Unionist, with his family secure in a house at a low rent. It would be of interest to know how much he would demand for doing his job anywhere in the world; liable to be bombed, hanged, shot, burned, crippled, maligned, victimized, and generally bustled about; leaving his wife and family to fend for themselves as best they can at home.

Discipline? Without wishing to put a foot wrong, how can the officers to-day maintain the standards of yesteryear? Whatever happens, we must not let R.A.F. stations become soviets rather than commands. Is this risk there?

The lone skilled sergeant or airman must not be allowed to become a god to his officer and he a "bod" to them. The barrack room lawyer type (ever the bugbear of all save those who could spot them with unswerving zeal) must not become a shop steward. Yet, it must be admitted, the threat of a letter to a Member of Parliament, unknown in the old days, has stayed the tongue of many a C.O., of many a sergeant.

In the good old days a wavering regiment was sometimes saved in war by the ever-unpleasant gallantry of an officer who shot the first man to falter, lest all his men should be butchered by the enemy. On a lower plane, many a B.R.L. has been silenced for ever with punishment, to maintain the morale and discipline of the majority.

In these democratic days, is there too much talk of the rules of evidence and too little of personality, where authority is required to be respected?

When church parades were abolished, was that the yellow light, with every logical argument why men and women should not be paraded to church—save one? Yet how else can the padres as well help the commanders fashion their men and women for their duty to the community?

As a matter of fact, a young Squadron Commander once tried this theory out, in Khartoum, during a hot summer. Over-impressed by the ideal, he cancelled compulsory Church Parades in favour of the voluntary variety. The men were put on their honour. The following Sunday, out of a maximum church input of about a hundred, to his glee ninety appeared. A week later the number dropped to twenty. A fortnight later it was six, a figure around which it stayed until it was smartly popped up to a hundred again.

Theoretically and theologically, in this there isn't a leg to stand on. Practically, men and women soon accept the *status quo*, and, indeed, begin to develop a sense of pride in themselves, collectively and individually; while the padre has a chance to tell them all the God-fearing things which don't always become every officer or N.C.O.

After all, on this score of discipline, what is the object of a fighting Service? Surely it is to train a man conscientiously to do what he is told when he is told to do it, a purpose which applies even more to a highly technical Service, in which his contribution to the common cause is often unobserved, than to any other. Wherefore there is no need to pander him, nor to let him pander those for whom he is responsible in his turn.

Which raises again the recruiting aspect. All this talk of sitting-rooms and bedside lights, of pleasures and plaything, is that the way to obtain men for what some of us regard as the Finest Service in the Greatest Empire the World has ever known?

An alternative? Offer the young men of this country a life of adventure amid the rigours of the desert and the arctic wastes; promise them a tough life, with both responsibility and prospects, for those who work hard and play fair; and, when and if they unfortunately die, haul their honoured remains proudly to their last resting place, flags aflying and bands playing, that all may know where rests a gallant British airman of His Majesty's Air Force. Let the approach be to those among our youth who can take it and pass it on, rather than to those for whom the tea bell tolls. What is more, for heaven's sake secure them as soon as they leave school.

These few words are all too inadequate to present the case in a world where argument no longer holds action. Some among us may justifiably hope we are not called to meet our Maker before the Royal Air Force, to which we once had the honour to belong, again rears its head in the air, confident in its strength. Ah! There is the nuance—confident in its strength.

Many good men and true may be forgiven their nostalgia, as they listen to the whispers of their old friends the gremlins—red, yellow, and, thank God, air force blue, with his plaintive:—

"Don't push off, Jack! I'm not on board!"

God Save the King.

Future Pacific Services : Report from Trans-Canada Airlines : Airwork Contract with Pakistan

PACIFIC CARRIER : First of the four DC-6 aircraft for British Commonwealth Pacific Airlines. Sleeping accommodation will be available on this service which will probably open in March.

CIVIL AVIATION NEWS

B.E.A.-P.A.W.A. BOOKING AGREEMENT

BRITISH EUROPEAN AIRWAYS CORPORATION and Pan American World Airways have announced an agreement whereby P.A.W.A. are able to confirm immediate bookings on B.E.A. flights to Paris, Amsterdam, Geneva, Copenhagen, Stockholm, Marseilles, Rome and Athens. The reservation system, known as "Sell and Report," enables any P.A.W.A. agent in the United States to sell B.E.A. space and report the sale to B.E.A. for periods ranging from 30 days to seven days before the flight or until the flight is filled. Immediate confirmation is restricted to two seats and further seats require a space request. The confirmation dead-line is seven days on return flights from London to Paris, Amsterdam, Copenhagen and Stockholm, 14 days to Geneva and 30 days to Marseilles, Rome and Athens.

SINGAPORE AIRPORT

THE R.A.F. airfield at Tengah, twelve miles north of Singapore, is to be developed into an international airport for use jointly by civil airlines and the R.A.F. The original plan was to develop Changi, built by British prisoners of the Japanese, but construction was suspended on account of shifting sub-soil. It will be completed, however, as a service airfield. It is understood that Singapore will contribute £750,000 sterling towards the cost of the new airfield and the British Government will bear most of the remainder.

AUSTRALIAN AIRLINE PROFIT

IT was recently announced by the Managing Director of Qantas Empire Airways, Mr. Hudson Fysh, that for the year ended March 31st, 1948, the nationalized airline made a profit of £79,900, an increase of over £14,000 over the previous year. In accordance with the company's policy of conserving the financial position, a 5 per cent dividend was declared, amounting to about £26,140, less than one-third of the profits. Among future plans, the Company hopes to open routes to Hong Kong, and to Johannesburg if the South African Government agrees to the proposal.

TRANS-PACIFIC PREPARATIONS

BRITISH COMMONWEALTH PACIFIC AIRLINES, Ltd., are attempting to gain a lead over competitors on the Pacific route by purchasing four long range Douglas DC-6s. The new aircraft are expected to start operations between Vancouver, San Francisco, Honolulu, Canton Island, Fiji and Sydney or Auckland by March this year. The B.C.P.A. DC-6s are 48-seaters carrying a crew of nine, including three pilots, a flight engineer, radio operator, navigator, purser and two stewardesses. For night travelling the seats may be converted quickly into sleeping berths and with more berths concealed in the ceiling of the cabin 37 bunks will be available. The second delivery flight from San Francisco to Sydney took 26 hours 39 minutes as compared with the current Skymaster schedules of 38 flying hours. Schedules should thus be reduced by at least a day on the 8,000 mile journey. The fare from the United States to Australia will be about £150. The yearly seating accommodation across the Pacific will be about 13,000 by the three companies, B.C.P.A., Canadian Pacific Airlines with Canadair Fours starting mid-summer, and Pan American Airways who have recently announced that Stratocruisers will be operated in 1949. It is understood they will operate between America and Honolulu until the runways at Kingsford Smith Airport, Sydney, are long enough, services will then be extended. Pan American have ordered twenty Stratocruisers for the Atlantic and Pacific-Alaskan Divisions.

T.C.A. EXPANSION IN 1948

BY far the most significant development of the year for Trans-Canada Airlines was the introduction of 20 large North Star aircraft on domestic and overseas routes. In a review of the year, Mr. G. R. McGregor, President of the airline, revealed that the seating capacity of the fleet had been increased by 50 per cent and another 5,000 miles had been added to T.C.A. routes, bringing the total from 11,000 up to 16,000 miles. During 1948 some 20,000,000 revenue miles were flown which is an increase of 2,000,000 over the previous year. Air cargo ton-mileage increased by 110 per cent, and mail ton-mileage was increased by 67 per cent as the result of a new policy of carrying first class mail by air at unchanged postal rates. Commonly called "all-up" mail, this service provides for the carriage of all letters in Canada, weighing an ounce or less. North Stars were introduced on trans-Continental services on June 1st, flying two round trips daily between Montreal and Vancouver. Some of the latest type were added to the North Atlantic fleet which permitted two flights daily between Canada and the U.K., as well as many charter flights. In all T.C.A. flew the Atlantic 1,400 times on revenue services during the year.

With the introduction of North Stars, the DC-3 fleet was diverted to service on Provincial routes. Services were opened to Bermuda on May 1st with two flights a week from Toronto and Montreal and later a third flight was added. Services to the British West Indies started in December, flying from Montreal to Toronto, Nassau, Kingston and Port-of-Spain, twice a week, one finishing at Jamaica and the other continuing to Trinidad. Although it is thought that traffic will be mostly with holidaymakers, and consequently seasonal, the route touches areas of agricultural and industrial significance to Canada. On domestic services in 1948 T.C.A. carried 537,000 passengers, 2,540 tons of mail and 1,665 tons of cargo. Overseas flights accommodated 31,300 passengers, 99½ tons of mail and 290 tons of cargo. In addition, 175 west-bound crossings of the Atlantic were made with immigrants, and in June T.C.A. flew six round flights a day over the Rockies to move 9,000 persons and 600,000 lb of food to and from British

Civil Aviation News . . . . .

Columbia, when surface connections were severed through severe floods. The T.C.A. fleet now consists of 20 four-engined North Stars, 27 DC-3s, and seven Lodestars. Improvements along the routes were carried out in office and hangar accommodation and to runways at some airports. No large route extensions are foreseen by T.C.A. in the immediate future, but the policy will be to consolidate those routes which are already being flown.

CONSTELLATIONS ON KANGAROO ROUTE

CONSTELLATIONS have now been put into operation on the B.O.A.C. Kangaroo route from the U.K. to Australia. The new service, which will eventually replace the flying-boats, takes 5½ days to cover the 12,000 mile journey. Night stops are made at Rome and Singapore with intermediate stops at Cairo, Karachi, Calcutta and Darwin. At present there is one Constellation flight a week and the flying-boat service has been reduced from three to two a week. It is understood that the Constellation service will be increased to two flights a week in February and the flying-boat service withdrawn altogether.

FREIGHTER TOUR TO AFRICA

ON Tuesday, January 4th, a New Type 170 Bristol Freighter, *African Enterprise*, was to leave England on a 17,000 mile demonstration tour of Africa. Considerable interest has been aroused by the two New Type 170 aircraft in service with Central African Airways and demonstrations are planned for the three operators East African Airways, South African Airways and West African Airways. Flying via Malta and Egypt the aircraft is scheduled to call at Jidda, Asmara and Aden and reach Addis Ababa on January 10th. After demonstrations at Johannesburg, Salisbury, Lusaka and Elizabethville the aircraft will probably return in mid-February by way of the Gold Coast and French West Africa. The Freighter is a Type XXIE, designed for the optional carriage of passengers and/or freight. It is expected that the total mileage for this tour will be over 20,000 miles.

AIRWORK IN PAKISTAN

A CONTRACT has been signed between Pakistan Aviation, Ltd., Karachi, and Airwork, Ltd., London, under which the latter will act as the assistant company and technical consultants in the development of an aircraft and engine overhaul shop and training school in Pakistan. Many military and civil British and American engines and airframes will be overhauled and the programme is already large. A lot of groundwork is necessary since technical standards in the Dominion have yet to be established. Workshops will be established at Drigh Road, Karachi, and the huge airship shed originally erected for the R.101 will be modified and used. Some 200 technicians will be sent to Pakistan and employment will be provided for 400 to 500 semi-skilled and unskilled Pakistanis from whom pupils will be selected for advanced training. The contract covers a three year period and it is understood that operations will start immediately.

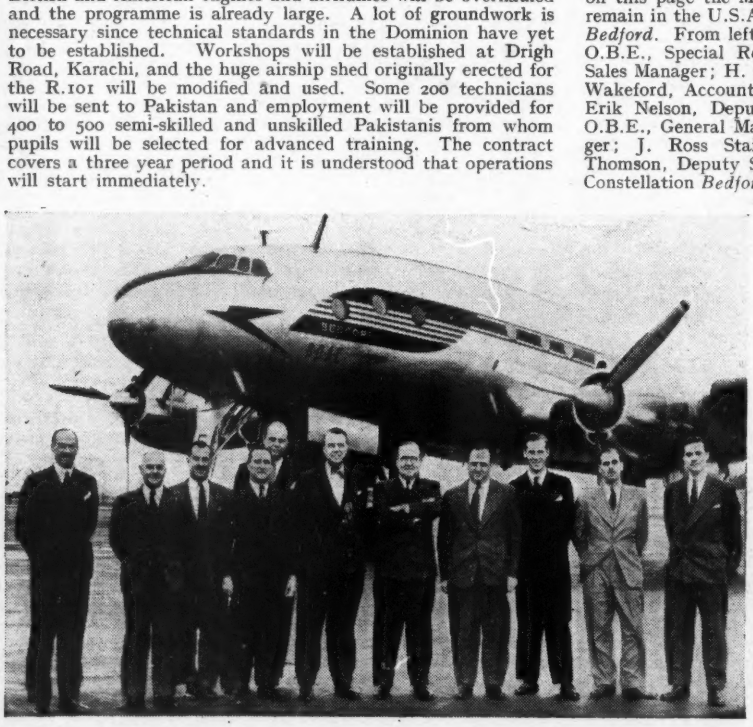
AIRPORT TRAFFIC IN NOVEMBER

MINISTRY of Civil Aviation statistics for November show that Northolt again handled more aircraft than any other airport in the U.K., but the greatest number of passengers passed through London Airport. There is a noticeable drop in passenger figures compared with the previous month when at London Airport 33,387 passengers, and at Northolt 43,846 passengers were passed through. These figures do not include passengers in transit. London Airport handled nearly 291 tons of mail and 560 tons of freight, of which 192 tons came in and 360 tons went out. Northolt handled nearly 109 tons of mail, of which 23 tons came in and nearly 86 tons went out, and 245 tons of freight. The aircraft movements of British operators at some airports have been included in brackets.

	All Aircraft Movements		Scheduled Movements		Scheduled Passengers	
	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.
Aberdeen (Dyce) ...	716	715	—	—	—	—
Belfast (Nutts Corner)	—	—	145 (145)	145	2,075	2,011
Belfast (Sydenham) ...	266	277	—	—	—	—
Birmingham (Elmdon)	807	809	—	—	—	—
Blackpool (Squires Gate)	226	226	—	—	—	—
Bovingdon	337	331	—	—	—	—
Bristol (Whitchurch)	243	245	—	—	—	—
Cardiff (Pengam Moors)	—	—	48	48	96	106
Croydon	393	387	—	—	—	—
Edinburgh (Turnhouse)	372	369	—	—	—	—
Gatwick	339	343	—	—	—	—
Isle of Man (Ronaldsway)	—	—	78	78	762	763
Kirkwall (Hatston) ...	271	270	—	—	—	—
Liverpool (Speke) ...	328	331	152 (98)	152	1,828	1,626
London Airport ...	962	963	652 (148)	674	9,469	13,167
Manchester (Ringway)	410	399	110	113	926	920
Northolt	868	884	667 (370)	682	8,841	9,369
Prestwick	480	474	235 (45)	227	793	1,075
Renfrew	266	265	201 (186)	210	2,169	2,044
Southampton (Eastleigh)	912	914	133	131	1,078	806
Southampton Water...	204	209	35	39	306	891
Weston-super-Mare ...	235	234	—	—	—	—
Yeadon	236	231	—	—	—	—

B.O.A.C. WESTERN DIVISION

WITH the move of the B.O.A.C. Western Division maintenance base, and headquarters of No. 3 line from Dorval to Filton, Bristol, the Western Division headquarters will also be transferred from New York to the U.K. In the photograph on this page the Management Committee, some of whom will remain in the U.S.A., are standing in front of the Constellation *Bedford*. From left to right they are: G/C. G. S. McDougall, O.B.E., Special Representative, Canada; Paul E. Bewshea, Sales Manager; H. Clyde Purnell, Traffic Superintendent; Eric Wakeford, Accountant; G. A. W. Wynne, Public Relations; Erik Nelson, Deputy General Manager; Vernon G. Crudge, O.B.E., General Manager; Charles Abell, O.B.E., Line Manager; J. Ross Stainton, Administration Manager; Alastair Thomson, Deputy Sales Manager; Peter Ball, Secretary. The Constellation *Bedford* was purchased secondhand in July, 1947, for £34,725, and after preliminary work in California was flown to Dorval for modification to B.O.A.C. standards. Work was finished by March, 1948, and the aircraft was in service the following month. The total cost of this aircraft after all work was completed was £114,725, which is less than half the price of a new aircraft of the type.



DIVISIONAL COMMITTEE: Members of the B.O.A.C. Western Division Management Committee at Dorval before the move to the U.K.

AIR CHARTER

THE charter market has been more active during this winter than in previous years, accounted for, it is believed, by a greater appreciation of the possibilities of air freightage amongst charterers. Also, rates have been reduced somewhat during the present year and aircraft owners are meeting their requirements to a very large extent by quoting freight rates compatible with the cost of ordinary everyday goods. Before Christmas the increase in small

Civil Aviation News . . . . . .

parcel traffic affected the airlines who sub-chartered aircraft from private operators to clear some of the back logs of freight. Most British Halifaxes are still on the Berlin air lift. The number of aircraft now available for chartering from the Baltic Exchange has been increased by aircraft from an Icelandic company operating Skymasters and a Spanish company operating Bristol Wayfarers and Freighters. The Paris air freight Exchange has been active and closer links have been established between the Bourse de Fret Aerien de Paris and the Baltic Exchange in London. The Brussels Chamber of Commerce is understood to be considering the possibilities of an air freight Exchange in addition to the one which has been proposed at Antwerp. No details are yet available of the move in America for an Exchange in New York.

Recent activity has included the carriage of G.I. brides to America in a Curtiss Commando, and Dakotas and a Liberator have been used by the oil companies for consignments of oil-field equipment. The fresh flower traffic from the south of France has not yet started in earnest and as the eventual selling price of the flowers has been below expectations importers are not yet certain whether bulk air transport of these commodities will be economical. There are enquiries circulating for the carriage of freight between Paris and London at the rate of two Dakotas per month at £106 per flight. Aircraft are also being sought to carry immigrants from Damascus to Caracas and from Athens to Haifa.

BRITISH INTERNATIONAL GLIDING

THE British Gliding Association has announced that as a result of discussions following the Association's participation in the 1948 international gliding contests in Switzerland, which were reported in *Flight*, August 12th, 1948, it has become apparent that international contest flying has reached professional standards, and that to achieve any satisfactory results British pilots must be up to that standard. The Association regards this as a very serious position because the majority wish to continue to keep gliding as the excellent sport that it is. If this state of affairs should prevail the successful participation in international contests would probably be impossible. Reviewing the question of ensuring the existence of a sufficient number of pilots of international standard to compose the British team the B.G.A. has arrived at two conclusions:

(i) To hold our own National Contests on International lines, with one pilot per machine (i.e., it is the pilot gaining the most points who wins in International Contests), and make them last for two weeks instead of one. The arguments at once put forward against this are, first, that if only one pilot is allowed on each machine, many pilots will be excluded from flying at all, and also that all the ground crews would have to work for the whole of their annual holiday for the benefit of a very few. Secondly, the National Contests in this country are also regarded as the one real opportunity of meeting friends and generally getting together and having fun.

(ii) Alternatively, for the few promising pilots to be subsidized. This would include the invidious job of selection, the provision of high performance competition gliders (which we do not produce in this country), the organization of frequent camps where these pilots could compete against each other under contest rules, and lastly, sufficient time away from ordinary occupations to put in at least 50-60 hours gliding a month during the summer. In other words, State camps, which the B.G.A. considers entirely impracticable.

In view of this the B.G.A. recommend that all gliding enthusiasts in this country should give their serious thought to the question of whether Britain should remain the home of competent skilled amateurs flying for the pure enjoyment of the sport or whether it is desirable to be able to send abroad teams that would demonstrate that the British gliding movement is at least as good as any other country's. Despite the B.G.A.'s concern regarding the future participation in international contests, it is nevertheless hoped that a small team will enter for the 1950 international contests to be held in Sweden. Moreover it is also hoped that one or two people with a glider may visit the national contests in Sweden this year.

PACIFIC DISCUSSIONS: At the third meeting of the South Pacific Air Transport Council the principal subjects were the purchase of DC-6 aircraft for B.C.P.A. and the site for a permanent international airport at Fiji. Four of the delegates were (left to right): Capt. E. C. Johnson, Deputy Director of Civil Aviation, Australia; Hon. Arthur S. Drakeford, Minister of Civil Aviation, Australia; and A. W. Coles, Chairman of B.C.P.A.; at back: A. A. Barlow, General Manager of B.C.P.A.

BREVITIES

AUSTRALIAN NATIONAL AIRWAYS' Bristol Freighter, for use on the inter-city air freight service, arrived in Melbourne on December 7th after an uneventful flight from London.

* * *

The Air Registration Board has issued *Notice to Licensed Aircraft Engineers and to Owners of Civil Aircraft No.* 30, on the inspection of blade retaining-nuts on de Havilland four-bladed propellers for Hercules engines.

* * *

A pamphlet now available from H.M. Stationery Office at 1s, entitled "Consol—An Aid to Navigation," includes a brief description of the use of the navigational aid together with details of the service and cover provided by the existing Consol stations at Bushmills, Stavanger, Lugo and Seville.

* * *

Captain Carl Burke, manager of Maritime Central Airways, Ltd., announced recently that the directors of the company had formed a new company in Newfoundland, Newfoundland Airways, Ltd., and had bought some of the assets of Newfoundland Aero Sales and Services. Newfoundland Airways, Ltd., was formed in October and will operate mail flights into the northern districts of Newfoundland during the winter.

* * *

A visit to Holland by Argentine Government officials on December 10th marked the opening of the K.L.M. extension to Buenos Aires, as reported in *Flight*, December 9th, 1948. The visitors included the Argentine Director-General of Commercial Aviation, the Under-Secretary of State for Transport and the Director of the Argentine Post Office, who presented a symbolic mail-bag to Mr. F. van Houwelingen, the Director-General of the Netherlands Post Office, when the party arrived at Schiphol. Before returning to the Argentine on December 23rd, they also visited Paris and Madrid.

* * *

Mr. G. S. Lindgren, M.P., Parliamentary Secretary to the Ministry of Civil Aviation, left on December 28th for a fortnight's tour of the B.O.A.C. routes and bases in South and East Africa. He is expected to return to this country on January 12th by a South African Airways' Skymaster via Nairobi.

* * *

To meet the demand for speedy carriage of small packages Trans-Australia Airlines has inaugurated an air express packet system on all interstate passenger aircraft. Double freight rates are charged for the service which is available until 15 minutes before the airport bus leaves the City offices and 15 minutes before the aircraft takes off.

* * *

On December 15th, 1948, Lord Pakenham, the Minister of Civil Aviation, was the guest of honour at a dinner given by the Foreign Airlines Representatives at the Savoy Hotel. Nearly a hundred guests were present, including the Foreign Ambassadors and Air Attachés of all countries operating air services from Great Britain, and the Chief Executives of British and foreign airlines.

* * *

Business excursion fares have been introduced by Pan American World Airways in conjunction with Panair do Brasil for a circular trip joining London, New York, Rio de Janeiro,

Civil Aviation News . . . . .

Dakar, Lisbon and London again for £231. Tickets, which will be on sale until February 28th, will be valid for 90 days and may be combined with any other fares.

* * *

Again, Turnhouse Airport, Edinburgh, has been used by British European Airways for diversion. On December 20th, owing to fog at Renfrew, the London-Glasgow Dakota carrying 17 passengers, landed at the airfield. A Dakota on the Irish service was also diverted to Turnhouse from Prestwick.

* * *

Air Services of India have applied for permission from the Director-General of Civil Aviation, India, to operate the Bombay-Indor-Gwalior-Delhi service with French ten-seater SNCA du Sud-Ouest, SO95 twin-engined transports as an alternative to Douglas DC-3s. The present fleet comprises eleven Douglas DC-3s, six de Havilland Dragon Rapides, and two light aircraft.

* * *

Increases have been announced by B.E.A. on the London-Zurich-Vienna route. The service now operates four instead of three return services a week on Mondays, Wednesdays, Thursdays and Fridays, returning the following day in each case. The times of departure and arrival of the outward services have been brought forward by one hour.

* * *

LAMSA, the Mexican company affiliated to United Air Lines, has introduced a scheme to encourage visitors to Mexico. Under the scheme a man pays full fare, his wife, children between 12 and 18, and children's nurse pay half fare and children between 2 and 12 pay a quarter fare. Tickets are available until March 10th, but the return journey portions of the tickets are valid until March 30th.

* * *

Safety standards for the operation of aircraft on scheduled international services have been adopted by the Council of ICAO and will come into effect on January 1st, 1950, if they are not disapproved by May 15th, 1949. Five other sets of standards, due to come into effect on various dates during 1949, have been adopted by the Council, including Personnel, Licensing, Aeronautical Maps and Charts, Rules of the Air, Dimensional Practices in Air-Ground Communications and Meteorological Codes.

* * *

In 1948, with December estimated, United Air Lines, the U.S. domestic operator, flew 20,068,000 freight ton miles compared with 10,161,000 in 1947. In addition the company flew 7,233,000 express ton miles, an increase of 5 per cent on 1947, and 9,271 mail ton miles, a gain of 7 per cent. Further gains in air mail volume are anticipated, due to a full year's operation of air parcel post.

* * *

In a report on activities of the Canadian Pacific Railway Company, mention is made of the C.P.A. preparations for opening services between Vancouver and Australia and New Zealand about mid-summer this year. Proving flights to the Orient are expected to take place as soon as equipment is available. During the past year C.P.A. opened a new route between Vancouver and Calgary, and have now applied to operate between Montreal, Val d'or, Rouyn and Noranda.

* * *

When visibility is below one nautical mile, a trained meteorological observer is to be located at the runway controller's caravan at London Airport for making personal estimations of visibility along the runway. This is being done as an experimental measure and observations may be passed to incoming aircraft by R/T. No guarantee can be given that these observations will always be available, however. Normal arrangements for visibility observations from the Meteorological Office are not affected and will continue to be the standard visibility for all purposes and to be available at all times.

FROM THE CLUBS

WITH the formation of a new company, Inter-City Air Services, founded by Aircraft (Hereford), Ltd., who have purchased the aviation assets of Autocars (Worcester), Ltd., members of the Hereford Aero Club will enjoy an extension of club flying facilities. An Aero Club and Gliding Club have been formed at Worcester and the members of both these clubs and the Hereford Club will be able to avail themselves of an interchange of facilities, and it is hoped, lead the way for affiliation of clubs in neighbouring areas. The new company, providing a link between the cities of Hereford and Worcester, hopes to get Perdiswell airfield, on the outskirts of Worcester, into operation again, and until this can be arranged it is hoped that the use of Pershore airfield can be obtained. The club and company fleet will be considerably increased as a result of this step which will provide additional Rapides and Proctors, and the purchase of an amphibian is contemplated in the spring.

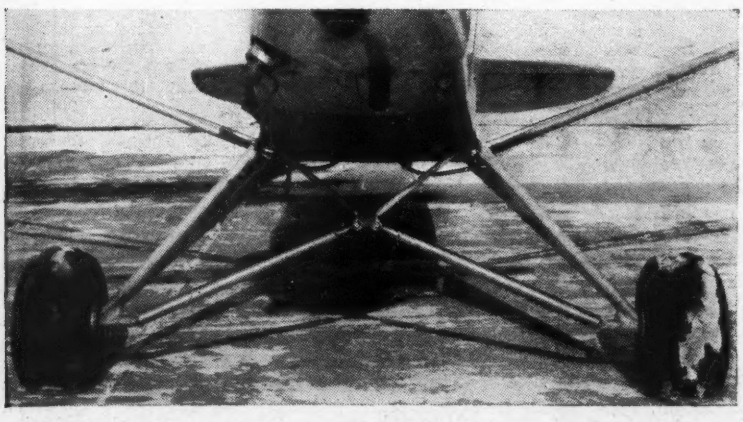
* * *

AT a public meeting called by the Luton Corporation on December 20th to consider the future of club flying at Luton Airport, the Hunting Flying Clubs, Ltd., who operate the Luton Flying Club, agreed to continue the organization of this club until February 28th. Hunting's had previously decided to withdraw from the Luton Club on December 31st, but, pending the formation of a new company to run the club and completion of negotiations regarding a lease from the Corporation, the Hunting company agreed to carry on management until the date fixed for the launching of the new company, so ensuring continuity of flying activities. The provisional plans are for the new management to take over when the current lease from the Corporation expires on February 28th, and in consequence the new company will probably come into being on March 1st.

Flying at Luton during December totalled 50 hours and the Luton Club reports a satisfactory year just completed with a total flying time of about 2,000 hours.

* * *

IN November fog and bad weather restricted flying at the West Riding Aviation Centre to fifteen hours solo and twelve hours dual. However, membership continued to increase, four flying and three ground members having joined, which brings the total to 412. On December 28th a lecture was given to flying members by Capt. P. F. Middleton on the Berlin Air Lift. An unusual charter flight was made during November when Arne Wallentin, a young Swedish seaman, who docked at Liverpool early in the month, wished to get married before sailing again, four days later, for the Canary Isles. As the law required fourteen days' notice before the marriage could take place Wallentin chartered an aircraft from the Centre and, with his bride and Pastor Abrahamsson of the Swedish Church, was flown out over the Irish Sea until the aircraft was clear of British Territorial waters. There the ceremony took place with the pilot and wireless operator as witnesses. The Centre announces, for future reference, that a best man can be provided for this service at no extra charge but a bridegroom would be requested to provide his own clergyman!



FOR BOUNCERS : Here shown installed on a Piper Cub, the new no-bounce shock struts are the tension members between the stub axles and the centre "V" under the fuselage.

'49 FILTON FASHION

Illustrated by "Flight" Photographs

HERALDED for a longer period than perhaps any other aircraft ever built, the Brabazon I, the initial flight trials of which are expected to start during the next few weeks, undoubtedly qualifies already for the title of the outstanding aircraft of the year 1949.

As well as being the most heralded, this aircraft has also been, and still is, the subject of greater controversy than perhaps any other, the widespread diversity of opinion as to its useful applicability being founded on one quality alone—size. Cogent arguments there are in plenty, both pro and con, but to evaluate the many views put forth is extremely difficult.

It has been said that in aviation one starts with an assumption and then calculates to four places of decimals, and whilst in some respects there is more than a germ of truth in this aphorism, it does tend to be glib and to disregard the established basic data upon which to-day's aircraft designer relies.

Mr. Peter Masefield, in his British Commonwealth and Empire Lecture, convincingly demonstrated that theoretically the Brabazon is the most economical type for stage lengths from 2,350 miles up to 3,920 miles, and is the only type capable of regularly making the direct London-New York non-stop flight against the average head wind, whilst still showing a profit.

Whatever may be the fiscal results of actual operation of the aircraft, from this experiment in size, a contribution to human knowledge in the progress of man will have been achieved; and only posterity will be able justly to assess the cost of that contribution. From the close range of our present viewpoint, one can only agree that the Brabazon *had* to be built, and the lessons learned from the whole project must, inevitably, benefit aviation as a whole.

Of the more concrete items on the debit side of the Brabazon ledger are the new runway and hangars at Filton but, in this regard, it does not seem altogether fair to debit this liability to one aircraft when so many other machines, although perhaps not with the Brabazon's requirements, will make use of these same facilities. In point of fact this does, in part, already apply in the B.O.A.C. usage of one of the Brabazon hangars as the North Atlantic maintenance base. Certainly, the runway item is a civil engineering matter, connected chiefly with the provision of sufficient strength to accept high impact point loads rather than the mere provision of length. Nevertheless, there

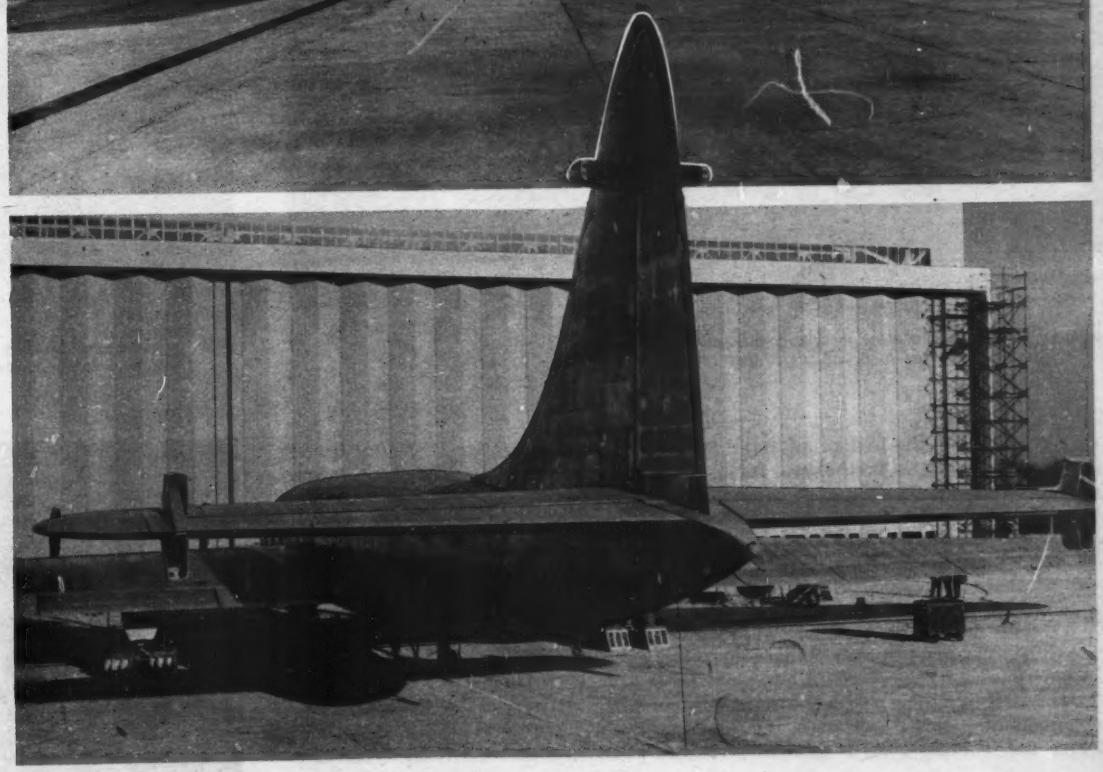
In each wing of the Brabazon is buried 10,200 h.p.

'49 Filton Fashion . . .

now exists at Filton a runway capable of serving any aircraft, either in existence or currently envisaged, both as regards landing weight and take-off run.

It may be apposite to reiterate a few of the more factual details of the Brabazon I. Accommodation is provided for 70 to 100 sleeping passengers or 120 sitting passengers, plus a crew of 12, including 5 stewards. The wing span is 230ft and the fuselage length 177ft. The first aircraft, as shown in the accompanying photographs, is powered by eight coupled Centaurus XX 18-cylinder, sleeve-valve, air-cooled engines, giving a total maximum output of 20,400 b.h.p., each pair of engines driving through a common reduction gear box serving the Rotol co-axial airscrews. The second aircraft will be powered by eight Proteus gas turbines, driving co-axial airscrews through reduction gears of design essentially similar to, yet differing in detail from those used with the Centaurus engines.

THIS series of photographs taken recently by Flight's W. McLaren, admirably portrays the beautiful form and the salient features of the prototype Brabazon. That the aircraft is of high aerodynamic efficiency is quite patent, whilst those items of detail design which are apparent in some of the illustrations display the intrinsic quality which characterizes the machine as a whole. At the top of the opposite page, the Brabazon can be seen to the left of a B.O.A.C. Constellation, Filton having now become the Corporation's maintenance base for the North Atlantic service. It is worth noting that the shrouded mass balances which can be seen on the Brabazon control surfaces are a precautionary measure against the possibility of flutter which might occur with aeration of the hydraulic powered-control system. These may well be deleted after experience had been gained from the initial flight trials.



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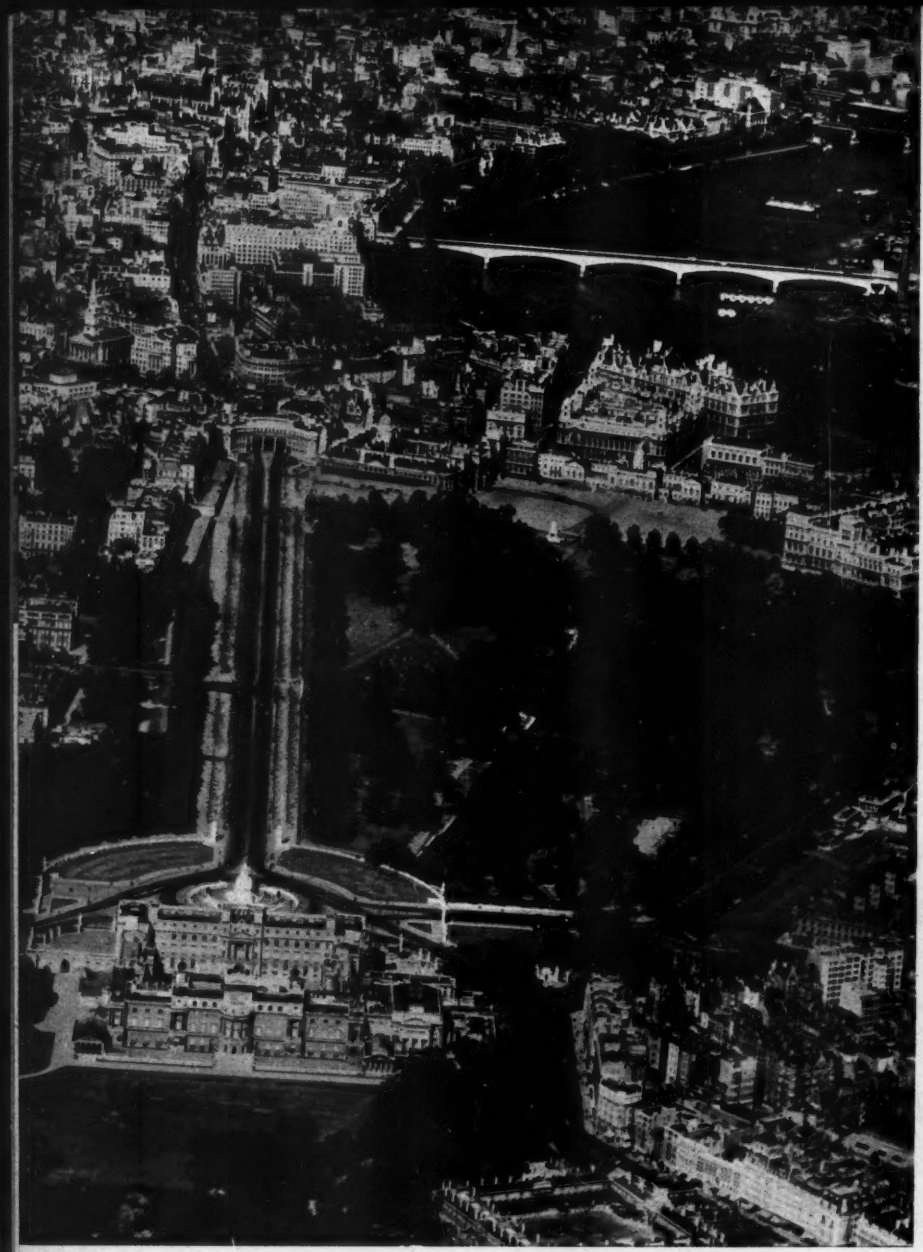


The winding Thames has its place in this majestic study of Buckingham Palace, The Mall and the distant City.

A warm sun beams on Hyde Park Corn Artille (below). At the foot of the pe[illegible]falgar

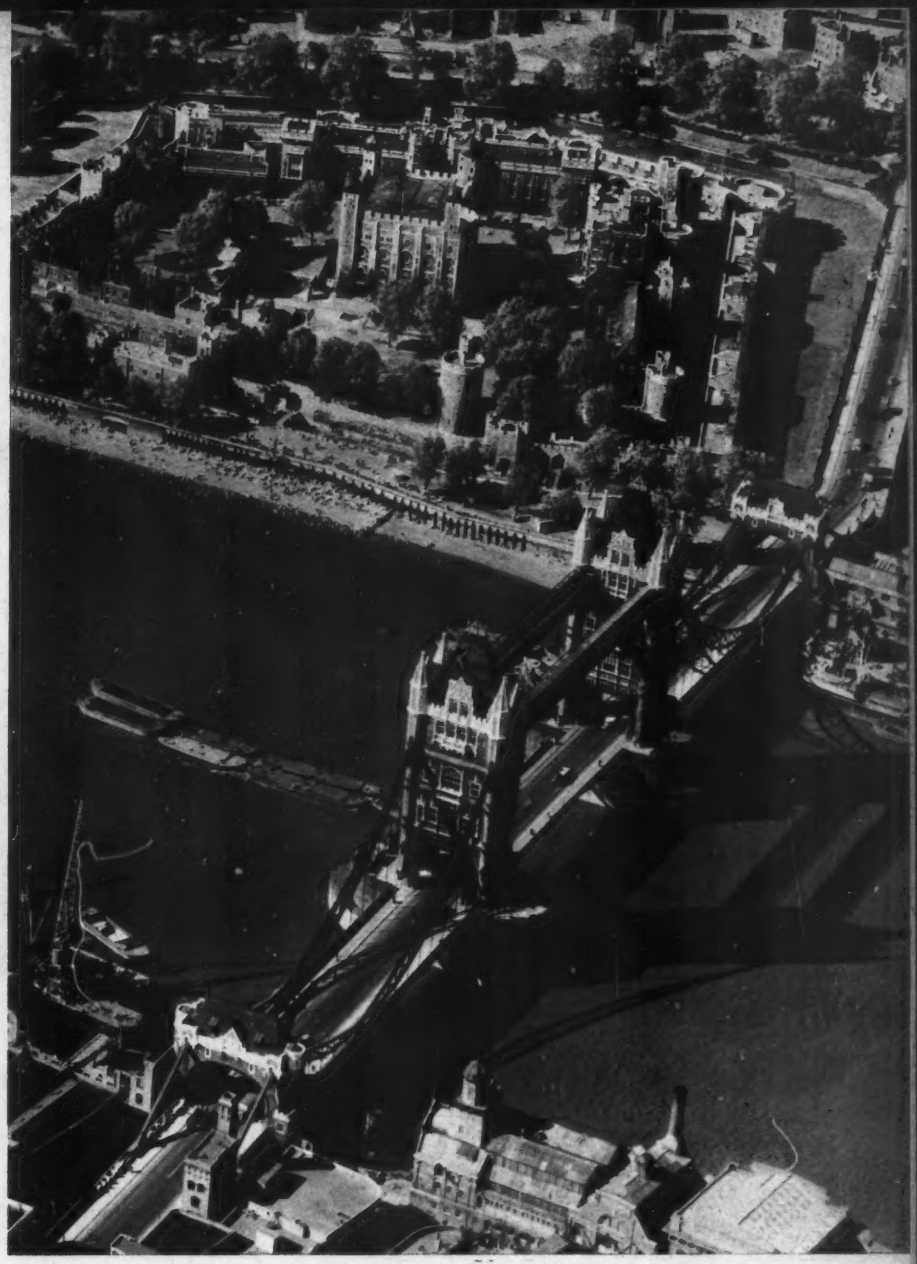
IT is recorded that the first of all aerial photographs was taken by M. Nadar from a balloon over Paris in the year 1858. The four splendid pictures of our own capital, reproduced on these pages, were secured some ninety years later, and are evidence of the fine quality of to-day's aerial photography, now established as an invaluable aid in many spheres of surveying.

Weather conditions in the United Kingdom are the greatest handicap to the aircrews of the R.A.F. and private survey firms engaged in air mapping; in some of the worst areas the number of days suitable for photography averages only four or five a month during the year. It will readily be seen, however, that there were no lighting difficulties when the accompanying views were recorded by Eagle Aerophotos last summer.

In the first photograph of the series, Buckingham Palace, normally concealed by its surrounding clusters of trees, is prominent in the foreground, and is shown to be nearer the Thames than is generally realised; the straight driveway from the

DON
DMARKS

ark Cor Artillery Memorial and the Quadriga
the pop falgar Square and its environs.



The Tower of London and Tower Bridge stand serene down London River. Youth has its fling at the water's edge.

Palace to Trafalgar Square, through Admiralty Arch, will be recognised as The Mall, with, on its right, St. James's Park, a delightful cameo amid some of the city's most imposing buildings. Spanning the loop of the Thames at upper right the new Waterloo Bridge, slim and white, is shown to unusual advantage.

Of the two smaller views, few Londoners would hesitate in identifying the lower photograph—a close-up of Admiralty Arch and Trafalgar Square—but recognition of its upper companion—Hyde Park Corner and its surrounds—might take longer, the area occupied by the trees and open spaces appearing deceptively larger to a pilot than to a pedestrian.

The familiar and revered landmarks in the fourth photograph need no introduction. Bright summer sunlight throws the unmistakable form of Tower Bridge in silhouette on the smooth surface of the Thames, while a tug, with its barges in tow, passes beneath the bridge. Between the historic battlements of the Tower of London and the river may be discerned a more recent institution—the small "seaside" beach.

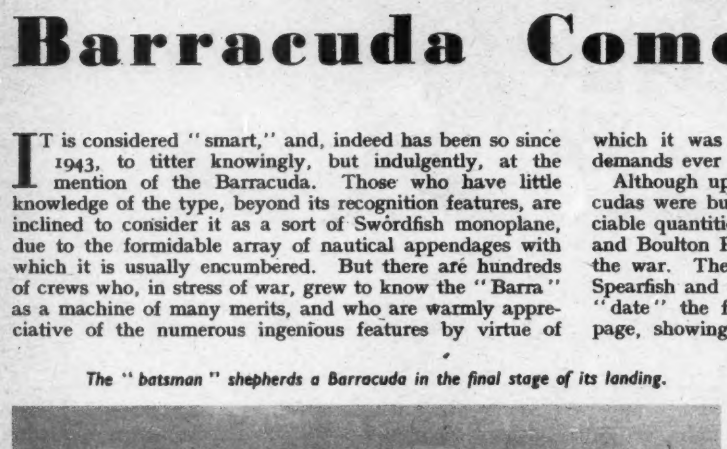
The escorting destroyer Rapid turns sharply near Illustrious, with her ranged Barracudas.

Barracuda Come-Back

IT is considered "smart," and, indeed has been so since 1943, to titter knowingly, but indulgently, at the mention of the Barracuda. Those who have little knowledge of the type, beyond its recognition features, are inclined to consider it as a sort of Swordfish monoplane, due to the formidable array of nautical appendages with which it is usually encumbered. But there are hundreds of crews who, in stress of war, grew to know the "Barra" as a machine of many merits, and who are warmly appreciative of the numerous ingenious features by virtue of which it was able to meet some of the most exacting demands ever made on a long-suffering Naval aircraft.

Although upwards of a thousand Merlin-engined Barracudas were built at Fairey's Stockport works, and appreciable quantities were turned out by Blackburn, Westland and Boulton Paul, little has been heard of the type since the war. The appearance of the later Centaurus-engined Spearfish and other naval strike aircraft further tended to "date" the faithful "Barra," but photographs on this page, showing machines of the type landing on H.M.S. *Illustrious* during the recently concluded exercises, afford proof that it survives in service to do a useful job for the Royal Navy. It is to be hoped, nevertheless, that modern turbine-powered replacements will not be long delayed.

The "batsman" shepherds a Barracuda in the final stage of its landing.



FAIREY BARRACUDA Mk. 3

Rolls-Royce Merlin 32 power unit

Span	49ft 2in
Width folded	18ft 3in
Length	40ft 6in
Loaded weight	14,500 lb
Max. speed	220 m.p.h. at 10,000ft
Climb to 5,000ft	4 min 48 sec
Range	443 sea miles (without auxiliary tanks)
Guns	2 x 0.303in Vickers
Other armament	1 x 18-in torpedo, or 6 x 500 lb bombs, or depth charges or sea mines

Rush Job to Singapore

Transporting the Palestine Police Force by Yorks and Skymaster to Malaya

By CAPTAIN DAVID BRICE, A.R.Ae.S.

ONE moment no one was thinking much about the Far East, and the next moment a telephone bell rang, and there we were, committed to fly the Palestine Police Force, some four hundred strong, to Singapore—and in a hurry.

Our normal schedule for previous flights had been in the neighbourhood of eight days, but with aircraft heavily committed elsewhere, this was too long. Moreover, Skymasters with thirty-six seats were not going to be of much value in such a mass exodus, so there were modifications to be carried out before we even started.

We converted a Skymaster from thirty-six seats to fifty-three, and with two Yorks already equipped with forty seats, we were ready to go in a very short space of time.

Then arose the matter of schedules. With the Yorks we had to take it a bit easy, because of their limited crew quarters and lack of sleeping accommodation, but we did contrive to position a slip-crew at Karachi, in itself no mean feat for a charter company, and this speeded things up a bit.

With the Skymaster, however, we had a more ambitious idea. We decided to plan the flight non-stop there and back, except for refuelling stops, which would mean an overall time of just over four days.

At first glance this looked formidable and even impossible, but, like most problems, there were ways around, and we did achieve a figure of 91 hours' flying out of 110 with the same aircraft, and with the same crew. And, moreover, we did so, not once, but four times with, of course, a crew change at home base.

Our idea was not new, but it worked. We carried a double crew and provided sufficient beds for the off-duty crew to sleep whilst their opposite numbers worked. Each crew consisted of a captain, a radio operator, a navigator, and these worked only one sector before being relieved. A first officer, flight engineer and steward worked with both crews, but shared two beds between them, and usually spent about half the flight time of each sector off duty. We carried five beds.

To help the steward as much as possible we arranged hot meals on the ground at every refuelling stop, and lunch boxes were to be found under every seat after take-off. Crockery and cutlery were cut down to a minimum, although we still retained our bar box.

We decided that the senior captain was to retain control of the flight as an overall operation, but that otherwise each captain should be in supreme charge of the aircraft over the sectors which it was agreed that he should operate. This would be so irrespective of what happened.

Special dispensation was received from the Air Registration Board to extend the Check I, which would normally have been required at some stage during the flight to enable the aircraft to return to base before overhaul; this being, of course, contingent on the aircraft remaining serviceable throughout the flight.

So much for the broad outline of the operation, which had not proved too difficult to work out. All we now had to do was to work out a schedule in detail, and this proved to be much more difficult than one might imagine.

To begin with, night flying was prohibited over Syria and Iraq because of the state of war which existed there. The monsoon season was at its height in Burma and India, with its consequent deterrent effect on night operations. Tengah Airport, at Singapore, was not available for night flying, except to scheduled airlines, and no alternative airfield could be used. Rangoon was unfit for heavy aircraft. Negombo, in Ceylon, was only available for scheduled airlines. Special permission had to be obtained for a flight from Karachi to Calcutta unless one was an airline, and there was some doubt as to whether we would qualify. In fact, there were a lot of snags, and once again the fact was forced upon us that unless one is fortunate enough to be a chosen instrument benefiting from Governmental reciprocal agreements, international air transport is, at best, a heck of a problem, and at worst a pain in the neck.

In the end we managed to work out a schedule which went straight through to Singapore, bar refuelling stops, with the exception of a ten-hour stop at Bangkok to await the daylight at Singapore.

Briefly, we were to leave London at 12.00Z on the first day, arrive Singapore at 23.00Z on the third day, spend an hour and a half there, and arrive back at London Airport at 04.05Z on the fifth day.

On August 18th, then, we started off on one of these trips, and arrived at London from Dunsfold at 09.35Z. *Visa* trouble held us up to begin with, and eventually one policeman without an Iraqi *visa* had to be left behind. As a result, we were one hour twenty-five minutes late on take-off.

With feelings of a none too auspicious beginning, we took off on the first leg to Malta. I and my crew were operating this sector, whilst Bill Ferries and his crew were soon in bed, trying very hard to sleep and enjoy their unaccustomed leisure, but without much success, since it was only early afternoon.

Cruising Characteristics

At 9,500ft we set course for Marseilles, and at the top end of our cruise control scale our Skymaster carried its 61 bodies along very smoothly at 180 knots, for a consumption of 160 Imperial gallons per hour. Later, as we burnt off some of our fuel load, and our all-up weight came below the 60,000 lb mark, we could expect a much lower consumption of about 135 gallons/hour, with a T.A.S. of 165 knots. All of which is evidence of a good commercial aircraft, considering its large and roomy fuselage.

Lake Marignane went by on schedule after a flight in continuous cloud and rain over the Massif Central, and then we altered course for Malta by way of Sardinia and Sicily. Every two hours we moved the supercharger controls from the low to the high position to exercise the blowers and prevent sludging, but otherwise our engines required little attention.

By the time we were over Sardinia it was dark, but we could still discern the black mass of a large thunderstorm over Corsica, which occasionally illuminated the mountains with vivid flashes. Ahead, other flashes gave promise of more storms over Sicily.

Our frozen food dinner of chicken sauté tasted none the less delicious for this, and with a few minor alterations of course, to avoid the blackest bits of sky, we soon had Malta Homer on the VHF for a reassuring verbal QDM. Soon after this, the city lights of Valetta could be seen, and then the red pundit at Luqa Airport drew our attention to the runway lights.

Our schedule called for a one-hour stop at Malta, which was just sufficient for refuelling, met. briefing, traffic documentation and a quick plate of eggs and bacon.

All our ground handling was being carried out by B.O.A.C. or their agents, with the exception of the flight documentation, which was being carried out by the First Officer. This included load and trim sheets, passenger lists, manifests, etc., and necessitated a lot of work.

We "cut" motors at 20.10Z, seven and a quarter hours

The Skymaster carried two crews, each consisting of captain, radio operator and navigator, while a first officer, flight engineer and steward worked with both crews. The author is in the centre of the group.

Rush Job to Singapore . .

after leaving London, and at 21.15Z Ferries gave the signal for "chocks away," which was an hour and a quarter behind schedule. We had picked up ten minutes. At Malta we dropped off another passenger, who stayed behind with a severe toothache, and made arrangements for him to be picked up by a later service.

By the time we were on course for Damascus, I was already in my bed, and lulled by the quiet drone of our four Pratt and Whitney R.2000/7s, I was soon asleep. Actually the Skymaster is one of the quietest of transport aircraft. Normal conversation is possible in the cockpit between pilots and engineer, and in the passenger cabin, even a whisper will suffice.

Into Syrian Territory

Crête and Cyprus went by in the darkness to the accompaniment of sundry snores and wheezes from my crew, and then, just before the sun rose the mountains of Lebanon showed themselves over our nose. Ferries was, by this time, scanning the approaching coastline for the small town of Sidon, which was our entry point into Syrian territory. Failure to observe our check points would, we had been warned, result in ourselves being the target of anti-aircraft guns, but privately we had heard it rumoured that machine guns were more likely to be the weapon.

Leaving Beirut to port, we were soon over the 9,000ft mountains, and then there was Damascus on the other side, nestling like a green bird amidst the sandstone hills and the desert, which stretched out to the east for hundreds of miles. We landed on the 2,000-yard runway at Mezze, and an Arab peasant ploughing his field stopped to watch us as our wing swept over his furrows on our way up the perimeter track. This time we landed only 15 minutes behind schedule, owing to strong westerly winds; our aircraft was behaving perfectly.

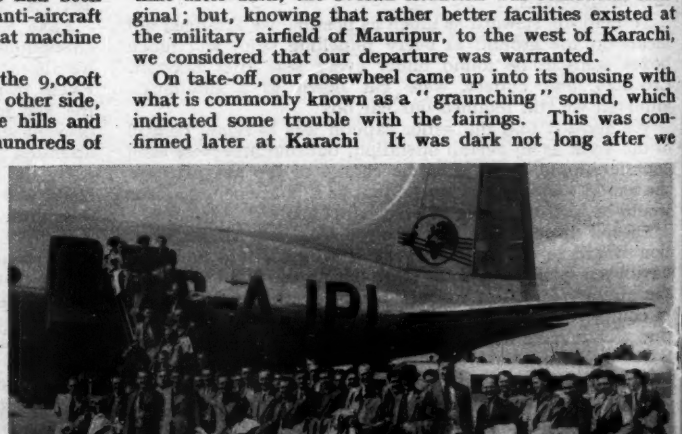
Fifty-five minutes later, after an English breakfast in the "French café" on the airport and a stringent war-like passport check, we were off again for Basra. The weather was CAVU, and the scene was most peaceful except for the presence of a Harvard on the apron. A bombing attack had apparently been made a few weeks before, but with the exception of a burnt-out haystack, no damage had been done. Not that the attack was without some repercussions, however, for the farmer owner of the haystack was so incensed by the destruction of a week's work that he leapt on his camel and was last seen vanishing in a cloud of dust on his way to the "front."

After a four-hour flight over monotonous desert, relieved only occasionally at the eastern end by twisting, muddy rivers, we flew past the mammoth R.A.F. base at Shaibah, and landed without incident at Margil Airport, on the banks of the Shatt-al-Arab. The temperature stood at 120 deg F in the shade, and we could feel every one of those degrees. It was hot!

To describe in detail our brief stopover at Basra would be to give it a prominence which already, after our comparatively brief flight from London, we did not attach to it. By then our flight had become a matter of routine in which the various stopovers for refuelling, etc., were only a small detail. Our one idea was to get to Singapore and get back, and we had soon adjusted our daily life to our flying hotel, so that there was no strain involved. Thus, we spent only the minimum time on the ground, and as soon as the necessary servicing had been completed, and the passengers fed, we climbed on board as rapidly as possible, and those who were not working went to bed.

From this point on, operating standards deteriorated as far as facilities available were concerned. We were briefed that the Radio Range was unserviceable at Karachi, the Radio Beacon was unreliable, the VHF was out of action, and no Homer existed. With all this, the weather forecast gave 10/10 at 1,000ft, occasional rain and visibility 1-2 miles. In view of the fact that our arrival was to be some time after dark, the overall situation was somewhat marginal; but, knowing that rather better facilities existed at the military airfield of Mauripur, to the west of Karachi, we considered that our departure was warranted.

On take-off, our nosewheel came up into its housing with what is commonly known as a "graunching" sound, which indicated some trouble with the fairings. This was confirmed later at Karachi It was dark not long after we



A full load, composed of members of the Palestine Police Force, about to embark in the Skymaster for Singapore.

Rush Job to Singapore . . . . .

had left Basra, and the hills at the back of Sharjah were obscured by the black sky as we passed over. By this time we had begun to receive "actuals" from Karachi, and they were as forecast. At least one thing was reliable!

Ferries was flying, so that I could afford to relax and reflect wistfully on the piping days of war, when aviation was an airman's dream, and all the world was covered with 2,000-yard runways, open twenty-four hours a day, with BABS, SBA, VHF, HF, MF, Sandra, and all the other aids which were designed to help a chap in need. Nowadays it seemed as if we were sliding back; runways cracking up, weeds on peri' tracks, cattle on tarmacs, radio aerials blown down, unserviceability, unreliability, etc.

But, anyway, we found Karachi, and the Radio Range *was* working, and so was the VHF; the Radio Beacon proved to be quite reliable for our let-down on the Radio Compass. We spent three hours there repairing the two retraction-strut fairings, which had somehow got tangled up with the nosewheel; the B.O.A.C. Indian engineers did a first-class job for us. Not that we minded the delay too much, for a night flight across India in the height of the monsoon can be a little rough, and the more light we had the more we could avoid in the way of bad weather.

Through Cu Nimb to Dum Dum

Later, as I took off at 20.30Z, the sky was clear for a while, and then it became more menacing. However, we didn't have too bad a trip, apart from the odd spells of torrential rain, which looked and sounded like a fireman's hose playing on the windscreen. It was broad daylight before we reached the really towering cumulo nimbus clouds, which seemed to start in the trees on the hillsides below and finish in the stratosphere, with filmy wisps of cirrus clinging around their anvils like hair in a breeze.

With some weaving and a few bumps we eventually reached Calcutta after seven and a half hours, and the clouds broke up conveniently so that when we were some way off we could see the Hooghly River coiling like a great snake through the verdant paddy fields. Here there seemed to be even a smell of water in the air, and everything looked as if it had just come out of a cold bath. Even the air was clean, so that under the clouds the visibility was limitless.

I ran across veteran K.L.M. pilot Jan Moll in the restaurant at Dum Dum, looking as spruce as ever, with an immaculate Constellation waiting for him on the tarmac, and we had coffee together. Then we were off again, and feeling nicely tired and quite at home in our crew compartment. I was asleep even before we had taken off; and I stayed that way until we were passing over Rangoon.

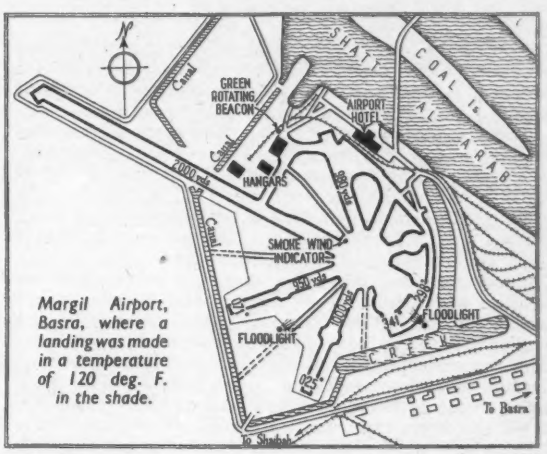
By this time we were two and a half hours behind schedule, but we were not worrying because our stopover at Bangkok would provide a buffer to absorb the delay, without affecting our arrival at Singapore.

We had a few bounces over the hills in Northern Siam, but otherwise nothing untoward occurred. The aircraft was behaving beautifully, and at last the first part of our objective seemed easily in sight. We landed at dusk at Don Maung airport, outside Bangkok, at 05.30Z on August 20th. We had been flying for forty hours thirty-five minutes, but it seemed ages since we had left London. It was another life. Surprisingly enough, no one felt particularly tired, least of all the passengers, in spite of their immovable seat backs, and they were in no way dissuaded from savouring the delights of Bangkok.

We all dined in the Trocadero Hotel, and I, for one, got a few hours' sleep in before some coolie brought in a revolting cup of tea to wake me up. It was raining then, and by the time we had all piled into a convoy of rather delapidated taxicabs and driven the 13 miles to the airport, our morale was at its lowest ebb. Most people will agree that once one breaks the continuity of any physical or mental effort the picking up of the threads again seems infinitely more difficult than when one broke them off. So it was with us, and I rather cursed the luck, or rather my lack of foresight, which put me in the left-hand seat, this time whilst Ferries sank into his rather soft bed.

It was still raining when we took off in a cloud of spray at 18.00Z, which was on schedule. Ahead and around, the sky was lit at intervals by lightning flashes which illuminated the clouds for many miles around, and thus greatly exaggerated the intensity of the storms. We flew low, at 3,500ft, until we were over the sea and fairly sure that there was nothing too solid in the cumuloform variety before us, and then climbed up to 9,500ft.

As we increased power for the climb, a few protesting groans from the sleeping crew enquired "what was up," but soon died down after our laconic "nothing." After that all was quiet and peaceful, and gradually we flew out of the rain belt into a clear tropical sky. Somehow the number of stars in the sky seems to vary in inverse proportion to the number of degrees in the latitude scale, and there always appear to be far more in the tropics than in temperate latitudes. Anyway, it was a nice night, with a pale moon to starboard, and we could see the ridge of black mountains stretching down the backbone of Malaya as we flew along the eastern coast.



Margil Airport, Basra, where a landing was made in a temperature of 120 deg. F. in the shade.

Around 22.00Z there was a faint glow in the sky over to port, and by 22.30Z it had begun to reflect in some high cirrus to the south. We could see the ground clearly then, and so we began our descent, winding around some large cumulus left over from the previous afternoon's instability. It was just before dawn that we passed over Tengah, obscured then by a rain shower, but by the time we had done a wide circuit the shower had moved on, and we came in to land on the dazzling white concrete runway in clear weather.

Our records show—and so do Qantas Empire Airways (!)—that we cut motors on the unloading apron at 23.00Z. We were on schedule, fifty-eight hours five minutes after leaving London.

Tengah is really an R.A.F. airfield, but it is being used by civil companies because Kallang is at present unsuitable for large aircraft. There was, however, a restaurant, and whilst we waded through our eggs and bacon, we discussed plans for the return trip.

Our only load was to be three Indian students, a fact which might have given some concern to a scheduled airline, but which was of relatively little importance to us.

We found that, in view of our light load, it was possible to operate with full tanks and thus fly direct to Calcutta. This meant a useful time-saving, and also obviated the expense of a landing at Bangkok. The only snag was that meteorological information about the route was scanty, and no weather reports had been received from India since the previous day. We knew that a trough of low pressure associated with the monsoon was likely to give extensive thunderstorm activity over Bengal, and that conditions off the Burmese coast would be bad, but there seemed to be no real reason for delay, so we made our preparations.

Rush Job to Singapore . . . . .

Our flight plan gave us a time of nine hours fifty-eight minutes at 10,500ft, whilst a Qantas Constellation due off just before us was giving a flight time of six hours thirty minutes at 16,500ft. We watched his take-off and envied him his pressure cabin.

An hour and a half after landing at Tengah we were off again—and because we were on our way home, with our job completed, we were in good spirits. Take-off weight was only 56,000 lb, so that we could afford to settle down at a low value on the cruise-control curve, with a correspondingly low fuel consumption. Our actual consumption after five hours' flying was only 110 Imperial gallons per hour at a cruising speed of 170 knots.

Dodging Water Spouts

As we had expected, the weather deteriorated as we flew north, and before long the cumulo nimbus was stretching in what seemed to be an unbroken chain ahead. To make matters more difficult, visibility was bad, with a persistent haze, and eventually there came a time over the Gulf of Tavoy when we were forced to descend with a view to seeking a passage under the clouds, or fly on virtually blind, with the very real risk of flying into a cu-nimb. Underneath was not a lot better, and at 800ft there were water spouts to dodge as Ferries weaved through the lighter patches in the torrential rain.

At one time we debated a diversion to Bangkok, as Rangoon was "shut down" by rain and low cloud, and our landing forecast for Calcutta, which we had received in flight, gave 10/10 cloud at 600-1,000ft, with continuous thunderstorms. But Akyab was better, as was Chittagong, and so we carried on, eventually finding an improvement as the cumuloform clouds gave way to a ragged stratiform type, and the turbulence subsided.

Although I write glibly of this sector, I must confess I was asleep for a fair proportion of the time and only woke up with the worst bumps. Ferries was muttering something about taking up some nice quiet job like schoolteaching when he got home, but otherwise did not seem perturbed at the general situation. After about nine hours there was a great improvement in the weather, and except for occasional massive thunderstorms over the hills of Northern Burma, the sky was a vivid blue. At the same time, the forecasters at Calcutta become somewhat more optimistic, and before long the flat, muddy delta of the Hooghly lay before us, with its dirty tributaries poking up through the green swamps.

We landed after eleven hours five minutes' flying time, with 333 gallons still in our tanks, almost enough for three hours more, and with the memory of the waterspouts to shoot a line about the next time someone "opened the hangar doors."

At 12.30Z on August 21st we took off from Dum Dum Airport, bound for Karachi. It had then been three days since we left London, and we had flown fifty-five hours five minutes out of the seventy-one hours' elapsed time. Not that we were particularly concerned about this, because with that peculiar psychological twist which protects us humans from boredom and strain, we all felt that as soon as we reached Karachi, with the worst of the weather behind us and the end in sight though still some five thousand miles away, we were virtually home.

The sun was setting as we wheeled over the Willingdon Bridge and set course to the North-West. On all sides we were confronted with towering cu-nimb, seemingly impenetrable, but I felt sure that as we flew nearer there would be a gap somewhere. By now the light was failing quickly, as it does in those latitudes, and with the dusk came the lightning with all its tropical ferocity.

Then it was dark, except for a thin red pencil of light over the western horizon, and our boundaries became the cockpit windows. Nevertheless, the thin red pencil served our purpose well, and always when the white bulging clouds seemed to fill the sky there would be that "pencil" beckoning us through the last gap.

We had taken the northern route via Allahabad and Jodpur because it lay over flatter country, and, moreover, was farther away from the influence of the monsoon winds. At 12,500ft we flew on to the west, gradually leaving the storms behind, and presently a half-moon came up over our port quarter. Allahabad went by under a rain storm, and then there were only the numerous forest fires to help us estimate our drift.

Karachi was giving its weather at 10/10 1,000ft, similar to what we had experienced on our outward journey, but all the radio aids were serviceable. At 19.48Z we were overhead, and I began a let-down on the radio range, using the radio compass as a monitoring device for a double check.

We broke cloud at 1,100ft on our procedure turn back to the airfield, and in a few minutes we could see the runway lights ahead, whilst the revolving beacon on the airship shed cut through the haze at frequent intervals. A minute later we landed off our "straight in" approach and taxied up to the apron to join the company of K.L.M., Qantas, B.O.A.C. and Philippine Airways aircraft already parked there. Inside the terminal building I ran across Moll again. Much amused at our progress, he had only got as far as Karachi since we had left him at Calcutta.

At Karachi we were one hour ahead of schedule on arrival, but owing to the congestion of scheduled services we had to wait our turn for transport and other handling facilities, with the result that we were half an hour late getting away. We were a bit impatient about all this, but we were soon doing our run-up at the end of the runway and then Ferries was calling for "50 inches" from the flight engineer, and the cabin lights grew suddenly brighter as the throttles went forward.

Our technique for take-off was to have the captain and first officer occupying normal positions, but with a flight engineer sitting in the jump seat between them. He was then in a convenient position for handling all controls on the throttle box, and did, in fact, take complete charge of this during all phases of take-off and landing. This idea probably originated from the necessity for the captain to have one hand on the nose steering wheel and one on the control wheel, leaving only his feet for the throttles! We found that it works very well under all conditions, and on the final approach the captain merely calls out the power settings until the "cut-off" just before landing. This gives the captain that much less to do.

Direct to Damascus

Four hours after take-off it was light, and we reflected, with some amusement, "Only one more sunrise and then we're home. The first four are always the worst." Sharjah went by, then Abadan, and at Basra we had plenty of petrol left, so we carried on to Damascus. We had a chat (on the VHF) with another Skyways' Skymaster just landing at Kuwait, and then flew on over the desert. Eleven and a half hours after leaving Karachi we were on the VHF to the Arab Controller at Damascus, who warned us, as always, "Please not to fly over Damascus city."

We were now two hours ahead of schedule, and the aircraft was running like the proverbial sewing machine. At 10.55Z we were airborne for Malta, and soon climbing over the mountains towards the Mediterranean. We had lunch as Cyprus passed slowly by our starboard windows, its blue mountains clouding an otherwise clear sky. And then tea and cream cakes from the coffee shops of Damascus, and just before the sun set with a splitting splendour of deep red rays, Kalafrana Bay hove in sight, with Valetta beyond just lighting up its street lamps.

We did our shopping in the Mess; a bottle of sherry, Lux soap flakes, chocolate biscuits and tinned meat, and then, with the aircraft refuelled and checked, hurried off on our way home.

The night went quickly because I slept, and at 03.07Z on August 23rd we landed at London Airport. We were 58 minutes ahead of schedule.

The next day G-AJPL left for Singapore again, and in the month of August flew 292 hours 38 minutes. But we went home to a hot bath, the first in four days, and a quiet bed.

HERE AND THERE

Car Ferry Licence

BRITISH AVIATION SERVICES, LTD., has obtained a licence from the Ministry of Civil Aviation to operate a motor car ferry service on a scheduled basis between Lympne Airport and Le Touquet. Two Bristol Freighters will start on April 14th with four flights a day, the first from Lympne starting about noon. Prices for the 20-minute journey have not yet been settled, but in all probability £30 will cover the cost of the motor car and four passengers. It will be remembered that last year the Company ran a service on a charter basis, and some 200 cars were carried during the season. Full customs facilities are available at both airports, and times of departure will be so arranged to allow convenient motoring time from London and Paris.

Gliding Clubhouse Reopened

THE reopening of the London Gliding Club premises at Dunstable Downs, following their use as a P.O.W. camp during the war and their recent restoration to pre-war standards, took place on January 1st. Mr. Dudley Hiscox, chairman of the Club, introduced Mr. Whitney Straight, who declared the buildings officially open. Mr. Whitney Straight spoke of the important part played by the gliding movement in helping to make Britain an air-faring nation; just as in the past the fact that we were a sea-faring nation had led to national prosperity so in the future, Mr. Whitney Straight was convinced, our destiny was to become an air-faring nation. Following the opening ceremony films on gliding were shown, and after these had ended members and guests concluded an interesting and enjoyable evening by dancing.

Dorothy Spicer Prize Essay

RULES and details of the Dorothy Spicer Memorial Prize Essay for 1949, the foundation of which was announced in *Flight*, December 23rd, have been issued by the Society of Licensed Aircraft Engineers. The subject selected for the 1949 contest is *Flying Controls on Large Transport Aircraft*, and competitors may choose any aspect of this subject for their papers which should not exceed 5,000 words; the final date of entry is February 28th, 1949. Entries, which must be accompanied by a duly completed entry form obtainable from the Society, must be sent to the General Secretary, Society of Licensed Aircraft Engineers, Finsbury Circus House, Blomfield Street, London, E.C.2, from whom copies of the rules may be obtained.

New Zealand Visitor to Shorts

DURING a recent visit to Northern Ireland, Mr. Peter Fraser, Prime Minister of New Zealand, inspected the Belfast works of Short Brothers and Harland, Ltd. Together with Mr. W. J. Jordan, New Zealand High Commissioner in London, and Sir Roland Nugent, Minister of Commerce to the Government of Northern Ireland, he saw the progress that has been made in the construction of four new Solent flying boats for Tasman Empire Airways, Ltd. Other projects which were inspected were the three Sealand amphibians under construction for B.W.I.A. for service in the Caribbean. Mr. Fraser who displayed very keen interest in the aircraft, especially the Solents, was much impressed with the standard of workmanship he saw and remarked that there was no doubt that the flying boat was the most comfortable way of travelling. Mr. Fraser was presented by Mr. C. P. T. Lipscomb with a model of a Solent.

DANISH MISSION: As reported in "Flight," December 30th, Capt. Rasmussen of the Royal Danish Navy recently flew the Hawker P.1040. Capt. Rasmussen is here seen with S.L. "Wimpey" Wade.

FORTY-FIFTH ANNIVERSARY: Three Martin P.B.M. flying boats flying over the Wright Brothers' Memorial on Kill Devil Hill, North Carolina, on December 17th, the 45th anniversary of the Wright Brothers' first flight.

New American Undercarriage

DESCRIBED as a perfect energy absorption system, a new oleo pneumatic undercarriage strut has recently been introduced by the Air-N-Oil Shock Absorbing System, Vandalia, Ohio.

The chief feature of the new unit is the complete damping of the initial landing shock so that the rebound tendency of the aircraft to bounce after a heavy landing is entirely eliminated. Although at present approved by C.A.A. only for light aircraft, it is stated that the strut is adaptable to all types of aircraft regardless of size, and this is reasoned to be of some significance in the larger transport categories in that the superior shock absorption qualities can mean great savings in the structural weight of the aircraft. A photograph appears on page 10.

B.T.H. Retirement

MR. R. H. COLLINGHAM, M.Inst. C.E., M.I.Mech.E., retired from his position as Chief Turbine Engineer of the B.T.H. Company on December 31st, 1948. He will continue his association with B.T.H. as a consultant on technical design problems.

T.C.A. Appointment

THE President of Trans-Canada Airlines, Mr. G. R. McGregor, announced recently the appointment of Mr. R. MacInnes as director of public relations. Mr. MacInnes enlisted with the R.C.A.F. at the outbreak of war and came to London to establish the Directorate of Public Relations; he remained in London as Director of Overseas Public

AMERICAN V.I.P.s: A party of U.S.A.F. generals accompanied Mr. Stuart Symington, the U.S. Secretary of State for Air, on his recent visit to the American base at Burtonwood, Lancashire. Left to right are: General J. Doolittle, Lt. Gen. J. K. Cannon, U.S.A.F. Commander in Europe; Mr. Symington, and Maj. Gen. Leon A. Johnson, Commander of the 3rd Air Division.

HERE AND THERE

Relations until 1944. The following year he joined the public relations department of General Motors and later was director of the New York Office of Canadian Information Service. Mr. MacInnes took up his new appointment on January 1st.

Percival Party

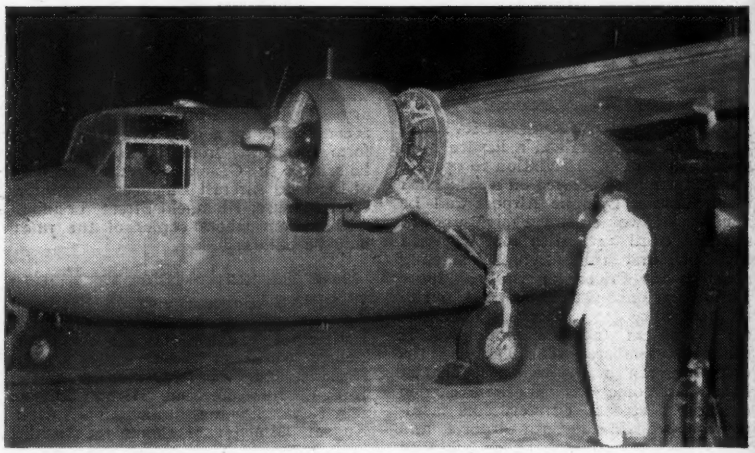
PERCIVAL AIRCRAFT held their annual dinner and smoking concert in their canteen on Wednesday, December 22nd. Mr. Ronald Evans, contracts manager and Percival old-timer, proposed "The Company," and Mr. Pat Hunting replied. "The Visitors" was proposed by Mr. Summers, managing director, and the response was made by Mr. Cowdrey, head of Napier's test and development section with whom Percival share Luton Airport. A pleasant party ended with entertainment and singing.

Inventors' Awards Commission Report

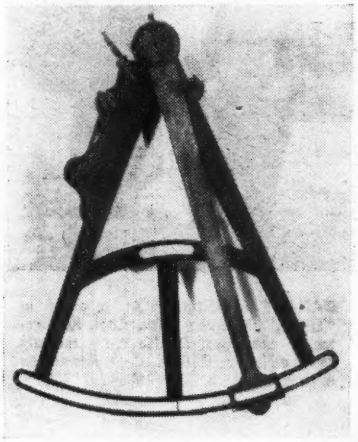
THE Royal Commission on Awards to Inventors recently published its first report containing a general survey of the principles which have guided its decisions and some particulars of more important claims dealt with by the Commission up to November 8th. Lord Justice Cohen is Chairman and the Commission normally sits every third week. Details of the awards and recommendations made are given in the appendices to the report, which can be purchased from H.M.S.O., York House, Kingsway.

Navigation Exhibition

IN the air section of the Institute of Navigation exhibition at the Royal Geographical Society there are some of the earliest flying instruments and navigation instruments used in this country. An air map of 1911 which was specially drawn and used for the first aerial post service in the U.K. is notable in that features marked are those most easily recognized from the air. The compass which made a successful flight on October 27th, 1909, after Commander Creagh-Osborne had removed the effects of vibration by laying a surveying compass in a wad of cotton waste in a wooden box is to be seen. There is also the Ogilvie aero turn indicator and an elementary air speed indicator which consists of a pressure cup mounted in the air stream and which is deflected by the air pressure against a spring. These deflections record the air speed on a scale visible from the cockpit. Another very interesting exhibit is the chart used by F/L. Underwood, the Navigator plotter of the R.A.F. flight across the North Pole. In addition, these old exhibits may be compared with the latest devices in air navigation and flying instruments. The Marconi exhibits range from the first type of wireless transmitter installed in ships down to the latest types of communication and navigation equipment.



NOCTURNAL ENGINE TEST: The Alvis Leonides engines of the second Percival Prince were given their first run recently. That this engine test was carried out at night is evidence of the strenuous efforts being made to hasten the completion of this aircraft. This is probably the first time since the war that an initial engine test run has been performed at night.



Hadley's Quadrant, the forerunner of the modern sextant.

News in Brief

THE date of the Air Scout Exhibition, reported in *Flight*, December 30th, has been changed and the show will now be held on February 5th, at Holloway Baptist Church, Holloway Road, N.19.

* * *

Until recently Chairman of the Anglo-American Oil Company, Mr. Emile E. Soubry, has been elected to the Board of Directors of Standard Oil Company (New Jersey). Mr. Soubry, a 52-year-old Londoner, has spent 37 years in the service of the Standard Oil Company and its affiliates.

* * *

It was announced by Mr. G. Wilton Lee, managing director of Arthur Lee and Sons, Ltd., Sheffield, at the company's annual staff dinner on December 16th, that Mr. F. Brown, secretary of the company, and Mr. T. M. Elliot, chief metallurgist and research chemist, had both been appointed special directors.

* * *

Short Brothers and Harland, Ltd., have announced that from January 1st, 1949, the chief designer, Mr. C. P. T. Lipscomb, Wh.Ex., F.R.Ae.S., appointed a director in 1942, has been appointed director in charge of research and development. He is succeeded as chief designer by Mr. D. Keith-Lucas, B.A., F.R.Ae.S. Mr. A. W. S. Clarke has become chief engineer.

FORTHCOMING EVENTS

Jan. 11th.—R.Ae.S. (Belfast): "One Thousand Miles an Hour," Prof. G. T. R. Hill, M.C., M.Sc., M.I.Mech.E., F.R.Ae.S.

Jan. 14th.—The Institute of Transport (Northern): "Commercial Aviation," F. N. Hillier.

Jan. 15th.—British Interplanetary Society: "The Problem of Interplanetary Flight" (Part 2).—"The application of Nuclear Energy," L. R. Shepherd. A summary and Discussion of Parts 1 and 2 will follow.

Jan. 19th.—R.Ae.S. (Brough): Lecturettes by branch members.

Jan. 19th.—Royal United Service Institution: Films, "Operation Crossroads" and "Operation Plainfare," W. Courtenay, M.M.

Jan. 26th.—R.Ae.S. (Preston): "Instrumentation in Flight Testing," Miss B. M. Rimmer, A.F.R.Ae.S.

Jan. 28th.—R.Ae.S. (Weybridge): Annual Dance.

Jan. 29th.—Society of Licensed Aircraft Engineers South Eastern Area Lecture. "Rolls-Royce Power Units," W. P. Calvert, A.F.R.Ae.S. Manson House, 26, Portland Place, London, W.1, at 3 p.m.

Feb. 1st.—R.Ae.S. (Belfast): "The Propeller Turbine Engine," F. M. Owner, M.Sc., F.R.Ae.S., M.S.A.E.

Feb. 2nd.—Royal United Service Institution: "Meteorology in War," Sir Nelson King-Johnson.

Feb. 5th.—Air Scout Movement: Exhibition at Holloway Baptist Church.

Feb. 9th.—Royal United Service Institution: "Land/Air Warfare," Air Vice-Marshal W. L. Dawson, C.B., C.B.E.

Feb. 9th.—R.Ae.S. (Weybridge): "Civil Air Transport," P. G. Masefield, M.A., F.R.Ae.S.

Feb. 12th.—Rugby Football Twickenham, Royal Navy versus Royal Air Force.

Feb 12th.—British Interplanetary Society: "The Design of Liquid-Propellant Rocket Motors," J. Humphries, B.Sc., G.I. Mech. E.

Feb. 16th.—R.Ae.S. (Brough): "Jet Engines," Mr. Wintar.

Feb. 16th.—R.Ae.S. (Preston): "The Propeller-Turbine Aero-Engine," F. M. Owner, M.Sc., F.R.Ae.S., M.S.A.E.

Feb. 18th.—Institute of Navigation: "Operational Aspects of Marine Radar." A Symposium of Papers. Chairman: Sir Robert Watson-Watt, C.B., F.R.S.

New-Year Honours

MOST HONOURABLE ORDER OF THE BATH

KNIGHTS GRAND CROSS (Civil)

Sir Hentry Thomas Tizard, K.C.B., A.F.C., F.R.S., Chairman of the Defence Research Policy Committee, Ministry of Defence.

KNIGHTS COMMANDER (Military)

Air Marshals: J. W. Baker, C.B., M.C., D.F.C.; A. B. Ellwood, C.B., D.S.C.; J. W. Jones, C.B., C.B.E.

KNIGHTS COMMANDER (Civil)

Col. P. G. J. Gueterbock, C.B., D.S.O., M.C., T.D., J.P., D.L., A.D.C., Chairman of the Territorial and Auxiliary Forces Association for the County of Gloucester.

COMPANIONS (Military)

The Rev. J. A. Jagoe, C.B.E., D.D., M.A., K.H.C.; A.V-M. P. H. Mackworth, C.B.E., D.F.C.; A. Cdres.: E. D. Barnes, A.F.C.; C. N. H. Bilney, C.B.E.; G. E. Nicholetts, A.F.C.; A. H. Robson, O.B.E., M.C., M.Sc., Ph. D.; H. V. Satterly, C.B.E., D.F.C.; A. W. B. McDonald, A.F.C.

COMPANIONS (Civil)

Col. G. B. Chetwynd-Stapylton, O.B.E., T.D., J.P., D.L., lately Chairman of the Territorial and Auxiliary Forces Association of Surrey. Brevet Col. E. E. Green, T.D., D.C., Chairman of the Territorial and Auxiliary Forces Association of Glamorgan. Col. N. V. C. D. Hamilton, C.V.O., D.L., Chairman of the Territorial and Auxiliary Forces Association of Ayr.

ORDER OF ST. MICHAEL AND ST. GEORGE

THIRD CLASS OR COMPANION

Colonel The Honourable Sir Ernest Lucas Guest, C.B.E., C.V.O., Minister of Defence and Air, Southern Rhodesia.

MOST EXCELLENT ORDER OF THE BRITISH EMPIRE

KNIGHT COMMANDER (Military)

A.V-M. J. Whitford, C.B., C.B.E.

DAME COMMANDER (Military)

Matron-in-Chief Miss G. Taylor, C.B.E., R.R.C., Princess Mary's R.A.F. Nursing Service (Ret.).

COMMANDERS (Military)

A. Cdres.: E. S. Burns; B. E. Essex; J. G. Franks. G/C.s: P. E. Berryman; W. G. Cheshire; J. Mutch; E. G. Northway, O.B.E.; V. H. Batten Roth; B. C. Yarde; J. C. Sisson, D.F.C.

(Left) Sir Henry Tizard—G.C.B. (Right) Air Marshal A. B. Ellwood—K.C.B.

COMMANDERS (Civil)

Capt. R. L. Joliffe, Honorary Catering Adviser to the Royal Air Force. Mr. C. W. Evans, Under-Secretary, Ministry of Civil Aviation. Mr. J. G. Evans, Assistant Secretary, Dept. of Scientific and Industrial Research. Col. W. C. Devereux, F.R.Ae.S., Managing Director, Almin, Ltd.; Chairman, International Alloys, Ltd. Mr. P. A. Cooke, O.B.E., M.C., Director of Engine Production, Ministry of Supply. Maj. K. M. Beaumont, D.S.O., British representative, Legal Committee, I.C.A.O., Montreal. Mr. A. E. Slater, Assistant Secretary, Air Ministry. Mr. E. P. Harries, member of Air Ministry Man-Power Committee

OFFICERS (Military)

W/C.s: R. J. Abrahams; S. G. Birch; N. G. N. Davis; F. Garrod, M.B.E.; G. S. J. Gibbs, M.B.E.; H. S. Grimsey, D.F.C., A.F.C.; S. R. C. Nelson, M.D., M.C.P. and S.; R. P. O'Donnell, M.V.O., Hon. R.A.M.; G. F. A. Skelton; P. G. Wykeham-Barnes, D.S.O., D.F.C.; S. Black, R.A.F.V.R.; K. F. Mackie, D.F.C.; W. G. Parry. S/L.s: W. Appleby-Brown, D.F.C., R.A.A.F.; E. S. Bishop; H. S. Corfield, M.M.; A. McC. Johnstone; G. E. Lovett-Campbell; E. C. Rideal, R.A.F.V.R. Lt. Cdr. (A) Stafford Hook, R.N.; Wg/O F. J. Kain, N.Z.W.A.A.F.; S/L. H. G. Wilson, R.N.Z.A.F.

S/L. R. W. Oxspring —A.F.C.

OFFICERS (Civil)

Mr. A. Bowden, Air Ministry; Mr. J. Cowie, Chairman, City of Glasgow Committee, A.T.C.; Mr. H. R. Gillman, A.F.R.Ae.S., Sec., Aerodrome Owners' Association and British Air Charter Association; Mr. V. Dodd, Senior Signals Officer, M.C.A.; Mr. H. C. Hall, M.I.Mech.E., F.R.I.C., Metallurgical Research Consultant, Rolls-Royce, Ltd.; Mr. A. G. G. Marshall, Chairman of Committee, No. 104 (Cambridge) Sqn., A.T.C.; Mrs. Beatrice Naylor, M.Sc., Principal Scientific Officer, R.A.E., Farnborough; Cdr. G. A. Nunneley, R.N. (Ret.), Aerodrome Commandant Grade II, Edinburgh Airport, M.C.A.; Lt. Col. J. F. A. Pitcairn, M.C., D.L., Sec., Territorial and Auxiliary Forces Associations of the Counties of Leicester and Rutland; Mr. H. W. S. Rew, Air Ministry; Mr. J. Wright, Director, Dunlop Aviation Div.

MEMBERS (Military)

W/C.: B. A. C. Duncan, R.A.F.V.R. S/L.s: F. L. Jenkins; L. W. Tordoff; C. C. Williams, M.M., R.A.F.V.R.; J. W. Willis-Richards. F/L.s: I. H. J. Doble; G. G. H. Ford; T. J. Holmes; F. J. Moden; J. E. Parr, R.A.F.V.R.; H. E. Stallworthy; T. A. J. Stocker; G. W. Suddes, R.A.F.V.R.; C. S. Thomas; G. H. Daniels, R.A.F.V.R.; W/O.s W. J. Bangay; A. J. Beavis; E. Calvert; B. Cooke; S. R. Davis; W. J. Goble; S. E. Hammond; T. H. Heslop; D. J. Shanahan; A. J. Wiles; C. J. Wood; R. S. Cooke; W. N. West. S/O. A. Penfold; Lt. Cdr. (A) D. B. Law, D.S.C., R.N.; Lt. Cdr. (A) (A.E.) C. G. Moore, R.N.

MEMBERS (Civil)

Mr. A. Beckess, Air Ministry; Mr. A. Gilbert, M.C.A.; Mr. A. W. Head, Air Ministry; Mr. J. E. Pennifold, Air Ministry; Mr. D. W. Richardson, A.F.R.Ae.S., Chief Instructor, de Havilland Aircraft Co., Ltd.; Mr. G. Shrosbree, Executive Sec., Employers' Secretariat, National Joint Council for Civil Air Transport; Mr. G. E. Surl, M.C.A.; Observer Lieutenant W. Twiss, Group Officer, N.W. Area, R.O.C.; Mr. C. A. C. Vecqueray, A.M.I.M.E., Chairman of Committee No. 1084 (Market Harborough) Sqn., A.T.C.; Mr. H. J. Wakeling, M.C.A.; Mr. A. H. Whiteley, Chairman of Committee, No. 384 (Mansfield) Sqn., A.T.C.; Mr. R. E. Wright, Base Maintenance Superintendent, London Airport, B.S.A.A.C.; Mr. P. A. Meyler, Superintendent, Flight Test Department, Bristol Aeroplane Co., Ltd.

ROYAL VICTORIAN ORDER

MEMBERS, FIFTH CLASS

F/L.s: E. B. Trubshaw; A. J. Lee.

ROYAL VICTORIA MEDAL

(Silver)

Sgt.: T. E. Shore. Cpl.: J. Parker.

AIR FORCE CROSS

S/L.s: N. B. Freeman; R. E. Havercroft; A. S. Knowles; H. B. Martin, D.S.O., D.F.C.; R. F. Martin, D.F.C.; R. W. Oxspring, D.F.C.; J. Finch, D.F.C. F/L.s: N. J. Adams; E. R. Chalk, R.A.F.V.R.; R. Coates, D.F.C.; C. I. Colquhoun, D.F.C.; A. G. Douglass; G. Ellams; G. E. C. Genders, D.F.M.; A. de L. Greig, D.F.C.; N. K. McCallum, D.F.C.; R. G. Milton; M. Scannell; D. Scorgie, R.A.F.V.R.; P. E. H. Thomas; E. H. Turner; S. R. Kellaway. F/O D. J. B. Whitehead. F/L. H. J. Collopy, R.A.A.F.; F/L. E. C. Palmer, R.A.A.F.; W/O. N. H. Peel, R.A.A.F.

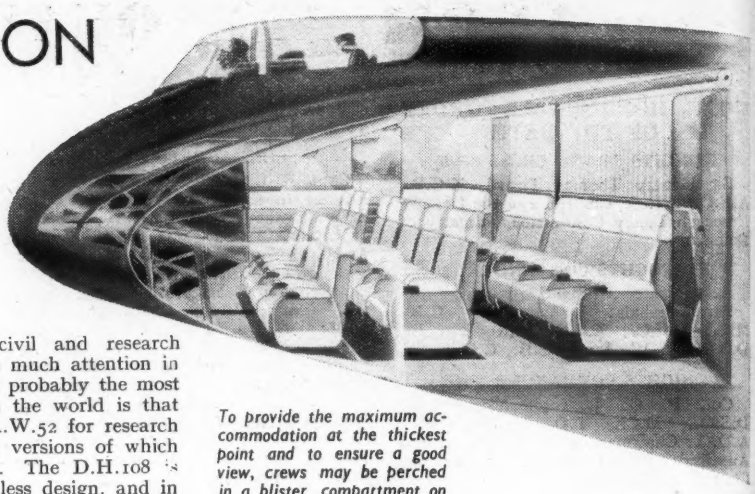
AIR FORCE MEDAL

F/S.: D. J. Spalding. Plt. I: W. C. Wood. Sgt.: A. J. Humphries. Plt.s II: W. McCash; K. Strachan, R.A.F.V.R.; Nav. II: A. Robinson; Sig. II: T. M. Laurent.

(List will be completed next week)

(Left) The Rev. J. A. Jagoe—C.B. (Right) Col. W. C. Devereux—C.B.E.

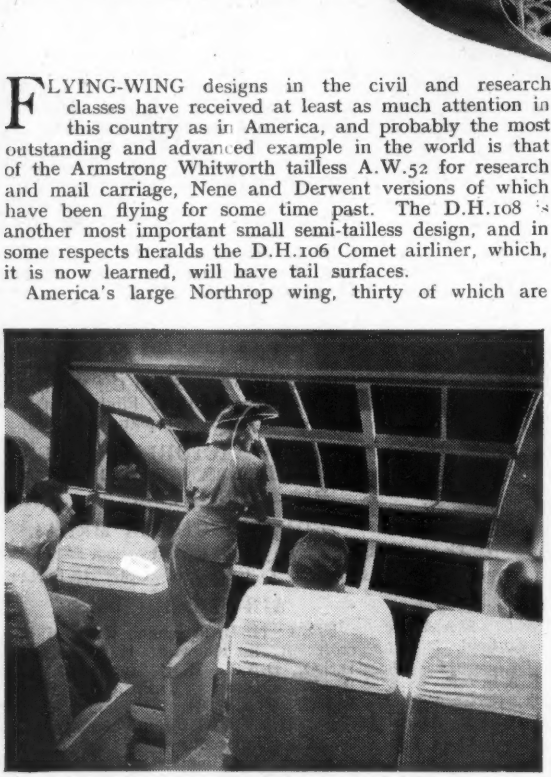
THOUGHTS ON ALL-WING TRANSPORTS



To provide the maximum accommodation at the thickest point and to ensure a good view, crews may be perched in a blister compartment on top of the nose.

FLYING-WING designs in the civil and research classes have received at least as much attention in this country as in America, and probably the most outstanding and advanced example in the world is that of the Armstrong Whitworth tailless A.W.52 for research and mail carriage, Nene and Derwent versions of which have been flying for some time past. The D.H.108 is another most important small semi-tailless design, and in some respects heralds the D.H.106 Comet airliner, which, it is now learned, will have tail surfaces.

America's large Northrop wing, thirty of which are ordered for bomber duties, has six turbojet power units. Known as the B-49, this version is developed from a piston-engined B-35 prototype. The all-up weight is a round 100 tons, and the span 172ft.



The attractive possibilities of large leading-edge windows are here shown to advantage. Pressure engineers are not, however, likely to enthuse.

Although no civil order has been placed for the all-wing Northrop, a study has been made of the potentialities. The accompanying pictures give an impression of what might be expected in the way of passenger accommodation and layout.

Particularly attractive features of the all-wing design are its low drag and structure weight. From experience already obtained with this type of aircraft, it can be said that increased running economy could be achieved for civil operation. Very encouraging fuel consumption figures have been obtained with the A.W.52s.

It is very doubtful whether a civil version of the B-49 would be sufficiently large to offer the full advantages of the design. Either an over-deep wing section from the aerodynamic point of view would be required or passenger accommodation and headroom would be very restricted. Mr. John K. Northrop has given his opinion—one shared also in this country—that considerably greater span would be necessary for even the smallest practical all-wing airliner.

At this stage a near approach to the all-wing design is a practical compromise. Sufficient capacity can be obtained by swelling the wing centre section into a small body to which, at the rear, is attached a vertical surface.

KRONFELD MEMORIAL DONATIONS

THE first list of subscriptions towards the Kronfeld Memorial Fund, the foundation of which was announced in *Flight*, November 11th, has been issued by the Fund Committee Chairman, Mr. Lawrence Wingfield. Donors and subscriptions are as follows:

	£	s.	d.
General Aircraft Ltd.	105	0	0
Guild of Air Pilots	5	5	0
Oxford Gliding Club	5	5	0
Philip A. Wills	5	5	0
J. Laurence Pritchard	2	2	0
L. A. Wingfield	10	10	0
Anonymous		7	6
S. Scott Hall	5	5	0
Slingsby Sailplanes, Ltd.	5	5	0
H. V. Roe	1	1	0
Leo Walter		10	0
Proprietors of *Flight*	10	10	0
Proprietors of *The Aeroplane*	10	10	0

APPRENTICE TRAINING AT NAPIERS

THE fourth annual presentation of awards and indentures to the apprentices of D. Napier & Son, Ltd., took place at the Company's Acton Vale works on December 15th. Following the report of Mr. A. T. Parker, the Apprentice Supervisor, and an address by Mr. J. E. Richardson, Ph.D., B.Eng., M.I.E.E., A.M.I.Mech.E., the Principal of the Northampton Polytechnic, London, Mr. J. S. Paget, the Manager, presented indentures and merit awards to Student and Trade apprentices. The Chief Engineer, Mr. H. Sammons, then presented Certificates of Outstanding Merit, and the fitting-shop foreman presented the Foreman's Trophy and prizes to W. Camin, the best Trade Apprentice, and the runner-up. The Company's Trophy and prizes were presented by Mr. H. G. Nelson, the Managing Director, to the best Student Apprentice, M. F. Knott, and the runner-up.

The Napier Company has always considered the training of apprentices to be of the greatest importance and "organized apprentice training" has been in operation since 1835, 27 years after the foundation of the Company. The Napier Apprentice Training Scheme is divided into three grades, Trade, Student and Graduate, the courses of these sections being of five, four and two years' duration respectively. The Trade Apprenticeship is for those of secondary school education, the Student Apprenticeship for those of public, grammar or technical college education of a more advanced standard, and the Graduate Apprenticeship is to enable those who have obtained a degree in engineering or an allied science to gain comprehensive practical experience of workshop operations and functions. Premiums are not required for any of these grades, and fees for attending technical colleges are also not required. Examination fees are the responsibility of the parent, but the company refunds fees of successful candidates.

FROM ALL QUARTERS

SOUTH AFRICAN VAMPIRES

THE latest sale of de Havilland Vampires is to South Africa. A contract for ten Mark 5 fighter bombers equipped to R.A.F. standards, and powered with Goblin 2 turbojets, has been signed, it is learned as we go to press.

SUPERSONIC SUCCESS

AFTER a series of disappointments and failures a Vickers transonic rocket-propelled research model, launched from a Mosquito over the Atlantic, has achieved controlled supersonic flight. A Mach Number of 1.36 has been mentioned unofficially. The American Bell X-1 piloted research aircraft may already have attained Mach 1.4.

AVIATION FUEL PROBLEMS IN AMERICA

THE latest expression of concern regarding supplies of aircraft fuels comes from America where the industry's supply of 100 octane petrol in particular may fall short of military requirements. The supply difficulties result in the main from Air Force expansion plans, and it may be necessary to draw from civilian supplies. An aggravating factor is the Berlin air lift, which uses some 143,000 barrels a month.

It is reported that the Armed Forces Petroleum Purchasing Agency has asked the industry for 14,000,000 barrels of aviation petrol and 1,658,000 of aviation kerosene. A barrel contains 42 gallons. The oil industry can offer all the gas turbine fuel and 33,000 barrels of 115 octane petrol, but of the 9,600,000 barrels of 100 octane only some 8,300,000 are offered.

The U.S. Air Force expects that 23 of its 70 Groups to be available by July 1st, 1950, will be equipped with jet aircraft, and although the high grade kerosene known as JP-1, which they will burn, is easier to produce than high octane petrol, there are fewer refineries to do so. Storage of JP-1 fuel, particularly in the Navy's carriers, is a problem.

BLACKBURN A.G.M.—A TURBINE PROTOTYPE

IN his speech to the annual general meeting of Blackburn Aircraft, Ltd., on December 20th, Mr. R. Blackburn, O.B.E., A.M.I.C.E., M.I.Mech.E., F.R.Ae.S., the chairman, confirmed that the net profit for the year, reported in *Flight*, December 2nd, was £125,395. After referring to the order for Prentices and the modification of a large number of Firebrands Mr. Blackburn said that it was hoped that the prototype of a new naval aircraft, powered by gas turbines, would be ready for flight testing early in 1949.

Mr. Blackburn then referred to changes of members of the board of directors which resulted from the amalgamation of Blackburns and General Aircraft, Ltd., reported in *Flight*, December 2nd and December 9th; Major Bumpus remains managing director of Blackburn Aircraft (Dumbarton), Ltd., who have been engaged on the production of aluminium houses; Mr. F. F. Crocombe, previously technical director of General Aircraft, Ltd., becomes one of the principal designers and technicians of the new company; the resignation was announced of Mr. W. S. Farren and Mr. A. F. Jopling from the Blackburn board, the latter being succeeded as secretary by Mr. E. Turner, Blackburn's chief accountant in 1946.

On December 31st, the date before the merger of Blackburn's and General Aircraft was due to become effective, it was announced that the design staff of General Aircraft, Ltd., intended to go on strike in support of a claim for the reinstatement of 26 of their colleagues who were dismissed for extending their Christmas holiday by one day without permission. A ballot was held to ascertain whether the majority of the members of the Association of Engineering and Shipbuilding Draughtsmen were in favour of the strike; 92 per cent voted against it.

GAS TURBINE SELF-STARTER SYSTEM

THE U.S. Navy has recently announced that a successful self-starter for jet aircraft has been developed. Described as "relatively simple," the new system has emerged as the joint effort of the Navy Bureau of Aeronautics and the Airesearch Manufacturing Co., Los Angeles.

At the moment, few details on the system have been released, but the rather sketchy data so far available give rise to some comment. The self-starter is said to comprise a small gas turbine engine and a high-speed turbine starter, the original power being obtained from a light 24 v. battery and a ¾ h.p. motor. It is further stated that "the gas turbine builds up a highly compressed air supply bled from the turbine to the jet starter device."

There is certainly little to go on in arranging these bare facts into a constructive picture of the system; however, we interpret the information to mean that the ¾ h.p. motor is likely to be an electric motor which, supplied from the battery, is used to spin up a small auxiliary gas turbine which acts as a gas producer unit for a further auxiliary turbine, the purpose of the latter being to provide torque for spinning up the main turbojet engine. That is to say, we envisage it as being a cumulative power-conversion chain system which, from small beginnings, builds up the requisite power supply for starting, whilst converting the form of power to that most readily applicable to the end to be served.

The Airesearch Manufacturing Co. are, of course, well-known as being at the top of the American tree in their particular field of specialized pneumatic and turbine equipment, and among the more notable of their recent achievements has been the air cycle turbine cooler unit for ultra-high-speed aircraft cabin cooling (*Flight*, November 4th, 1948). In point of fact, the new starting system is said to involve a number of separate utility features vital in aircraft design, in that the turbine unit which powers the starter can be used for cabin conditioning, wing de-icing and other power-consuming services.

The provision of self-starting in a turbojet aircraft is a considerable problem, the high inertia in the rotating system of a gas turbine engine making necessary a fairly high and sustained starting torque. Then, having overcome the initial inertia, the unit has to be accelerated up to, in some cases, as much as 250 per cent idling speed in order to attain sufficient flow through the compressor to support combustion. In this regard, the starting speed requirements of engines with axial-flow compressors are somewhat higher than those utilizing centrifugal flow. The Americans have, of course, shown a predisposition towards axial-flow types.

WESTLAND ANNUAL GENERAL MEETING

THE annual general meeting of Westland Aircraft, Ltd., took place on December 7th. The chairman, the Rt. Hon. Lord Aberconway, C.B.E., in his speech, stated that the year under review had been largely occupied in the development of production with a consequent substantial increase of work actually in process of manufacture. He referred to certain settlements which had been reached on contracts of previous years resulting, after agreement over amounts due for income and excess profits tax, in a credit of £84,051 being carried to the profit and loss account. The year's profit, after providing for depreciation, taxation and a loss shown by Westland Engineers, Ltd., amounted to £93,279 compared with £32,763 profit in the previous year. A dividend of 7½ per cent per annum free of income tax was recommended. Lord Aberconway stated that high priority was being given to research and development, and helicopters being built under licence from the United Aircraft Corporation were flying; deliveries of these aircraft to the Ministry of Supply and civil customers would begin shortly. The chairman concluded by referring to the activities of Normalair, Ltd., and Westland Engineers, Ltd., and said that the terms of purchase of land for the extension of Yeovil airfield had been arranged.

GASKETRY

IN automobile circles the squeezing of a little more power from an engine still seems to invite and regularly to introduce gasket troubles. The same is not true of aircraft power units, but there is nevertheless room for improvement. Such things as firing after switching off a hot engine can often be traced to the cylinder head gaskets.

A new company, Plexeal, Ltd., is now being formed at Haddenham, Bucks, to produce a gasket material of the same name. Patents in France and this country are involved, and the material itself comprises very thin aluminium laminations separated by skins of plastic resin. Experiment and trial in a number of engines has shown that the resin flows to the points of least pressure between laminations and there sets, the whole forming a virtually perfect seal capable of withstanding extremely high pressures. In addition a plastic beading which forms on the edge of the gasket is presented to the combustion chamber, and pre-ignition and over-running troubles due to hot metal edges are thus mitigated.

It is early to record results, but claims regarding reduced tendency to "pink" seem likely to be substantiated, and there are certainly other good talking points, notably: cheapness of manufacture—one press operation only being required—very good heat transference from head to block, lightness, and the ability to cut a single-permanent gasket or washer under emergency conditions much as if the material were cork or cardboard.

The intention is to provide both finished units and strip material to allow manufacturers to press their own gaskets.

BOOK REVIEWS

Aircraft—from Airships to Jet Propulsion. By B. W. A. Dickson. First impression, private issue, then Naldreth Press. Price 8s 6d.

THIS is the season when the aeronautical journalist must grapple with reviews of progress during the preceding twelvemonth. Having lately been associated in such an undertaking, the writer has a fraternal feeling for Mr. Bonner W. A. Dickson (General Manager, Aircraft Section, Vickers Armstrongs, Ltd.) who has compiled a record of "V.A.'s" aeronautical activities since 1908, in which year, co-operating with the Royal Navy, the firm began experimenting with lighter-than-air craft.

The fruit of Mr. Dickson's researches is a handsome volume, of the above title, lately issued by Vickers, Ltd., and containing a foreword by Major Sir Hew Kilner, M.C., Deputy Chairman, Vickers Armstrongs, Ltd. The first copies have been issued on a restricted scale, but another edition was published through the normal channels on January 3rd.

It is to be regretted that the author could not have included some of the many Vickers and Supermarine prototypes which, though never reaching the production stage, exhibited many meritorious design features. Such errors of commission as we have noted in a preliminary perusal are of a minor nature, though we are constrained to take up Mr. Dickson on his statement that "the maximum speed for a straight run of the Attacker has not been disclosed." This has, in fact, frequently been published (590 m.p.h.).

German Gas Turbine Developments during the period 1939-1945. His Majesty's Stationery Office. Price 1s.

AN overall report on German gas turbine developments during the war has now been published by His Majesty's Stationery Office. It is the work of the British Intelligence Objectives Sub-Committee and is based on a very large number of individual B.I.O.S., C.I.O.S., F.I.A.T., and J.I.O.A. reports. The purpose of the booklet, which is remarkably concise, has been to answer the question "what can Britain learn from Germany?" An introduction deals with early developments and pre-war work, individual projects being reviewed, but the bulk of material is devoted to component design and material specification and properties. Reference is made to gas turbines for power generation, marine work and armoured fighting vehicles, but in the main the report refers to aircraft power units. In an appendix principal data concerning the German aircraft gas turbines dealt with are neatly tabulated as shown below.

The arrangement of the report is commendable, and for those wishing to pursue investigations in greater detail, all previous reports and pamphlets from which this summary is compiled are listed, and an index is provided.

Fly With the Pilot. By Alan Buck. Quality Press, Ltd. 7s. 6d.

THAT *Fly with the Pilot* has been written for school-agers is immediately apparent from the large, well-spaced print, but so interesting and informative is this little book that many an adult as yet uninitiated into the elementary technicalities of flying will find it well worth an hour or so of his leisure.

With the promise of a flight in a B.O.A.C. airliner ahead of him, the reader first learns something of the principles of flying and receives his *bapteme de l'air* in a light aircraft. Then comes the flight in a Lancastrian from London Airport and subsequently another in a flying boat at Hurn. During these trips the reader is "at the pilot's side" and has every phase of flying procedure explained to him in simple terms.

GERMAN GAS TURBINES—Appendix to combined B.I.O.S. Report

Manufacturer	Type and Designation	Power or Thrust (lb)	Specific Fuel Consumption	Weight (lb)	Length (ft in)	Diameter (in)	Compressor	Combustion	Turbine	Remarks
Junkers	004A	1,850	1.40	1,870	12 6	30	8-stage axial.	6 straight-flow chambers. Upstream injection	Single-stage. Solid blades.	Initial experimental engine. Only a small number made.
	004B	1,980	1.40	1,650	12 6	30	As above	As above.	Single-stage. Hollow air-cooled blades.	Improved production version of 004A. Several thousand made.
	004H	4,000	1.20	2,500	13 2	34	11-stage axial.	As above.	Two-stage. Air-cooled hollow-blades.	Completely redesigned engine. To fit 004B nacelle. Never built.
	012	6,600	1.20	4,400	14 9	43	11-stage axial	8 straight-flow chambers.	Two-stage.	Some parts manufactured but never assembled.
	022	6,000 h.p. + jet thrust	—	—	About 17 0	43	As for 012.	As for 012.	As for 012.	Design only. Propeller version of 012 engine.
B.M.W.	003A	1,760	1.4	1,340	11 6	27	7-stage axial.	Annular. Downstream fuel injection.	Single-stage. Hollow air-cooled blades.	Production engine.
	003C	2,000	1.27	—	—	—	7-stage axial (Brown, Boveri).	Annular.	As for 003A.	Experimental. Only one engine built.
	003D	2,420	—	—	—	—	—	—	—	Design estimate.
	018	7,700	1.10	5,500	13 2	50	12-stage axial.	Annular. Downstream fuel injection.	3-stage. Hollow air-cooled blades.	Design and part manufacture only. Never assembled.
	028	6,900 h.p. + 3,000 lb.	—	7,700	16 8	50	As for 018.	As for 018.	4-stage.	Airscrew version of 018. Design only.
Heinkel-Hirth.	He.S.3	1,100	—	795	About 4 0	37	Axial-flow inducer centrifugal compressor.	Reverse-flow annular.	Inward radial-flow.	Experimental only. First turbojet engine to fly in world.
	He.S.8	1,500	—	836	About 5 6	30.5	As for He.S.3.	Straight-flow annular.	As for He.S.3.	Few only. Also contemplated as ducted fan engine (He.S.10).
	011	2,860	1.31	2,090	13 4	42.4	Axial-flow inducer, diagonal flow impellor three-stage axial compressor.	Straight flow annular.	Two-stage axial flow.	Partly developed but never reached production stage.
	021	2,000 h.p. 1,700 lb.	—	—	—	42.5	As for 011.	As for 011.	As for 011.	Airscrew version of 011.
Daimler-Benz.	ZTL	2,000 h.p. at 560 m.p.h. and 20,000ft.	.81	2,870	15 3	33	Nine-stage axial with contra-rotating stator driving three-stage ducted fan.	Four tubular chambers.	Single-stage. Cooled by partial admission from ducted fan circuit.	Experimental engine built. Mechanical difficulties retarded development and project was abandoned.

CORRESPONDENCE

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers not necessarily for publication, must in all cases accompany letters.

FIRE-FIGHTING EQUIPMENT

Why Not Helicopter Fire Tenders?

IN support of your correspondent J. O. Mathews' eminently sensible suggestion for half-track fire-fighting airport fire tenders, expressed in your December 2nd, 1948, issue, why not also have helicopter fire tenders? "D. G. H."

E. Twickenham.

RAM TEMPERATURE RISE

Depends on Forward Speed Only

TO avoid still further misunderstanding, may we point out that the ram temperature rise, referred to by Mr. Barratt in the December 2nd issue of *Flight*, is dependent only on forward speed, the dependence on ambient temperature and pressure being quite irrelevant. J. C. F. BRUNSWICK.

Ilford. A. G. RAWCLIFFE.

CLIPPED WINGS

Dangerous Neglect of our Fighting Services

IT is a pity that in expressing his disagreement with the views of your correspondents, his own comrades in arms, ex-S/L. D. M. Laver should have found it necessary to be gratuitously offensive both to them and to you. It would seem that he advocates encouraging potential gangsters by affording them every facility for training, and stipulates only that they shall not be supplied with live ammunition.

Certainly our reluctance to allow them to indulge their "inexplicable joy and satisfaction" shows a churlish ingratitude for all the services the Luftwaffe rendered us. But we may, perhaps, find consolation in reflecting that a few more years of neglect of our own fighting services will soon enable the Luftwaffe, the Red Air Force, or both, to stretch their wings over English skies unfettered by the heroism even of a gallant "few." G. SANDYS-LUMSDAINE.

Winchester, Hants.

MANNING THE R.A.F.

Some Comments on Sir P. Joubert's Articles

AS an ex-apprentice of 1926 vintage, one-time airman pilot and released in 1946 as a wing commander "not wanted on the post-war voyage," I have been following with mixed feelings the various manifestations of official concern about R.A.F. recruitment.

There was Lord Tedder asking what was wrong with the younger generation in not coming forward; even if they are worse than their fathers (which is doubtful) I thought it was poor psychology to say so and indicative of an abject bankruptcy of ideas.

There was Lord Douglas declaiming that the R.A.F. was in danger of "dying on its feet," but making little attempt to diagnose the disease. More to the point, I thought, was the Hansard report of the Lords' Debate; but in discussing the possibilities of better propaganda there was no mention of the value of the pre-war Hendon pageants, and the need to reinstitute something similar. One gigantic loop by a Meteor IV would be worth a dozen phoney P.R.O. hand-outs.

And now we have Sir Philip Joubert's refreshing analysis, which is sound so far as it goes but, I suggest, omits certain relevant factors:—

(i) He does not consider the scale effect; surely the pre-war R.A.F. was so much smaller than the current optimum Force that even under identical conditions post-war recruitment would have been more difficult anyhow.

(ii) He ignores completely the effect of pre-war unemployment on recruitment and discipline. Had there been full employment then, would it have been so easy to pick and choose; and would the R.A.F. have been so "disciplined, efficient and contented?" Again, what about the man discharged at forty; surely a modern R.A.F. must do something for him? Times have changed.

(iii) He maintains a discreet silence on the post-war choice of officers for permanent commissions; on any count this was, I think, bungled badly, and has not helped the Service.

(iv) He offers no solution of the R.A.F.'s most difficult problem of all: namely, how to rear an officer class who, whilst bred in the best "press-on" tradition, will at the same time (or slightly later) become wise and experienced leaders of technical young men. It was as easy for the pre-war ex-apprentice to enter the officers' mess as it was for the short-service commission type to fly through the hangar; it did happen occasionally, but all the doors had to be open at both ends. How late, for instance, was the inception of the technical branch.

On the points he does make I would say:—

(a) Surely a simple return to pre-war ideas of discipline is not quite good enough. Is it not about time the R.A.F. developed their own particular brand of "bull," and gave up the old bastard concept born of that ungodly bedlock betwixt the grenadier and the bo'sun's mate?

(b) He is, I think, less than fair to the wartime technical staff who would have been quite content to serve-on if only reasonable prospects had been offered. After all, there were so few of us pre-war technicians that, as the war went on, we were completely swamped, and formed at the end only a very small proportion of the total. Even then the majority of us had been commissioned.

(c) Surely reference to undue acceleration of the release programme by the Socialist Government is rather unfortunate. Would it not be better to keep politics out of this? After all, the release after this war has been managed a good deal better than after the last.

(d) I think Sir Philip rather under-estimates the difficulties of married life in the pre-war R.A.F. One certainly drew marriage allowance over the age of 26, but it was quite another matter to come "on the strength" and so to be entitled to a married quarter.

The opinions of such a distinguished and experienced officer will, of course, be given due weight; but even he, I think, has not appreciated the full magnitude of the problem and the changed circumstances facing the post-war R.A.F. I hope his homily is taken to heart, but I very much doubt whether the Air Ministry have a man of sufficient stature and experience to cope with the situation. The most tragic feature of the present débacle is that we have very few, if any, officers at the top who really appreciate the manner in which the modern young mind works.

I regret that I cannot publish my name and address, but I am, I think, just a typical and slightly sad W/C. RTD.

Sutton, Surrey.

THE R.A.F. BENEVOLENT FUND

An Appreciation

From The Rt. Hon. Lord Riverdale, C.B.E., LL.D., J.P.

THE R.A.F. Benevolent Fund has received many donations from your readers. I think they will be gratified to see the following extracts from a letter received by our Controller. As well as warming their hearts, I hope it will show them that the money they so generously subscribe is being well spent.

"When I arrived in London friendless and walked the streets looking for work, I did not know how utterly lonely one could be. I did not want charity, but honest work; try as I did, though, I had no success. My small capital was soon exhausted and many times I put off my visit to your office thinking that I would meet with a committee who held a means test on every applicant.

"At last I decided to call. From the time I saw Mrs. Blank I knew that London was not so lonely and friendless. Her gracious charm, cheerfulness, sympathy, understanding, her words of encouragement, her helpfulness—all immediately dispelled some very dark clouds that had enshrouded me. I knew that from the moment I sat in the chair at her table I had met a friend and adviser. I cannot sing too loud in her praise. To yourself, Sir, I just cannot put into writing my loyal thanks for the way in which you gave me immediate financial help, and later the cheque to purchase tools. I am glad to say that I stepped out into the streets of London with my head held high, backed with the words of wisdom and encouragement from Mrs. Blank and yourself, and am happy to state that I have now secured employment.

"My only hope is that some day shortly I shall be in a position to give a donation to the Fund, that you may help and advise another deserving ex-airman as you have helped me. I can say no more, Sir, but thank you. Maybe you get hundreds of letters phrased like this: can we let this be another one?" RIVERDALE.

67, Portland Place, London, W.1.

SERVICE AVIATION

A SAILOR ASHORE : Despite its obviously dry-land surroundings, there is no mistaking the truly nautical air of this newly produced Fairey Firefly 5, in latest Naval colour scheme, as "Flight's" camera catches it on the point of touch-down.

Royal Air Force and Naval Aviation News and Announcements

R.A.F. Promotions

THE following half-yearly promotions, taking effect from January 1st, have been announced.

Air Vice-Marshal to Air Marshal: J. W. Baker, C.B., M.C., D.F.C., Sir Hugh S. P. Walmsley, K.C.I.E., C.B., C.B.E., M.C., D.F.C.

Air Commodore to Air Vice-Marshal: F. J. W. Mellersh, C.B.E., A.F.C., T. C. Traill, C.B., O.B.E., D.F.C, G. Harcourt-Smith, C.B., C.B.E., M.V.O., G. H. Mills, C.B., D.F.C., A. Hesketh, C.B., C.B.E., D.F.C., W. A. D. Brook, C.B.E., H. J. Roach, C.B., C.B.E., A.F.C.

Group Captain to Air Commodore: R. N. Waite, C.B.E., F. R. D. Swain, C.B.E., A.F.C., R. Coats, A. W. B. MacDonald, A.F.C., H. I. Cozens, C.B., A.F.C., L. de V. Chisman, D.F.C., R. J. Rodwell, C.B., F. G. S. Mitchell, O.B.E., V. G. A. Hatcher, O.B.E., A.F.C., C. A. Bell, G. L. Worthington, C.B.E., E. C. K. H. Foreman, C.B.E., M.R.C.S., L.R.C.P., J. MacC. Kilpatrick, O.B.E., M.B., B.Ch., D.P.H.

King's Commendations

TOGETHER with the awards in the New Year Honours List, published in this issue, has been announced the following list of King's Commendations for valuable service in the air. Except where otherwise indicated, the names are those of serving members of the Royal Air Force.

Wing Commander A. J. Shelfoon, A.F.C.; Squadron Leaders: M. E. Blackstone, D.F.C., R. N. H. Courtney, D.F.C., A. K. Passmore, D.F.C., J. Rennie, P. N. Smith, D.F.C., W. T. Ellis, D. C. L. Webber, D.F.C., E. W. Wright, D.F.C., D.F.M.; Flight Lieutenants: S. Allen, P. Barber, D.F.C., G. J. Bolton, E. A. Brittain, J. Campbell, J. C. H. Cole, R.A.F.V.R., L. V. Dale, R. V. Ecclestone, D.F.C., D. T. Evans, B. J. L. Greenland, R.A.F.V.R., A. E. Hall, N. W. Heale, R. Houghton, N. Lawson, R. Lingard, D.F.C., J. A. W. Long, D. G. Maddocks, D.F.C., G. W. Massey, F. J. E. Moysey, B. P. Mugford, J. T. Newboult, W. P. Peedell, R.A.F.V.R., H. Pugh, J. Robertson, G. D. Secretan, P. Sherriff, D.F.C., P. A. Stanford, D.F.C., D. G. Walker, W. J. Warn, D.F.C., R.A.F.V.R., F. G. Woolley, D.F.C.; Flying Officer B. Sherwin; Master Pilot K. R. Price, D.F.M.; Pilots I: S. Evans, R. J. Skinner, O. Stephen; Signaller I D. James; Pilots II: S. J. Brockfield, P. M. S. Ecob.

Royal Navy

Lieutenant Commander E. M. Brown, O.B.E., D.S.C., A.F.C.

Army

Major A. C. Gow, Royal Regiment of Artillery.

R.A.F. Appointments

THE Air Ministry has announced the following appointments: A.V-M. J. D. I. Hardman, C.B., O.B.E., D.F.C., is to be Commandant of the R.A.F. Staff College, Bracknell, thus leaving the duty of Assistant Chief of Air Staff (Operations) which he has held from May, 1947. Appointed to Bomber Command as A.O.C. No. 3 Group is A.V-M. A. Hesketh, C.B., C.B.E., D.F.C., who recently returned from Nanking, where he was Air Attaché for two years, before which he spent a year as Senior Air Staff Officer of the Group he now commands. A.V-M. D. McLaren, C.B.E., K.H.S., is to be Principal Medical Officer of Technical Training Command; appointed an Honorary Surgeon to the King in June, 1947, he has been P.M.O., R.A.F. Mediterranean and Middle East since March, 1946.

A. Cdre. J. G. W. Weston, C.B., O.B.E., who spent last year attending the Imperial Defence College course, has been appointed Director of Policy (Air) at the Ministry. Another new director at the Air Ministry is A. Cdre. A. J. Rankin, O.B.E., A.F.C., who has become Director of Intelligence (Operations) on his return from Japan, where he was A.O.A. at Air Group H.Q., British Commonwealth Occupation Force. A new appointment in the Medical Branch is that of A. Cdre. A. Briscoe, who becomes Principal Medical Officer at Maintenance Command H.Q., after three years in a similar appointment at Flying Training Command.

"N.C.O. Downed Tools" Denial

IN the course of an address to aircrews and ground crews at R.A.F. Station Binbrook, Mr. Arthur Henderson, the Secretary of State for Air, referred to a recent newspaper allegation that an N.C.O. had "downed tools" when asked to work late. "I have had the fullest investigations made into this allegation," Mr. Henderson stated, "and I am assured that no such incident occurred. I can only regret that such a story should be given currency to the detriment of the Royal Air Force. I am satisfied that the discipline of the force is being well maintained."

U.S. Jets for Canada

SPEAKING in Ottawa on December 28th, Mr. Brooke Claxton, Canadian Defence Minister, outlined the Dominion's defence programme for this year. Especially significant was his announcement that Canada is negotiating with the United States for a "new type of jet fighter" to replace the Vampire as the R.C.A.F.'s standard single-seat fighter. This did not mean that Canada felt that the U.S. had taken the lead in jet design, added Mr. Claxton; they still thought that the Vampire was, in many ways, the best jet fighter in the world. There were, however, good reasons for adopting American types and standardizing in every way possible; during the last war there had been difficulty in adapting British types to North American manufacturing methods. Production of the U.S. fighter would be under way in Canada within the next twelve months. No hint was given by Mr. Claxton as to the particular design selected, but the very large orders recently placed by the U.S.A.F. for the 670-m.p.h. North American F-86, present world speed record holder, suggest this aircraft as a likely choice.

Apart from jet fighters, the 1949 programme, largest in Canadian peacetime history, would lay stress on anti-submarine vessels, airborne forces, and Arctic training. Four new air force establishments were being opened, and the Arctic base at Churchill was being completely rebuilt. Improved pay and ration scales would be introduced, making the Canadian Services the world's best fed, and among the best paid. Intensive recruiting was to continue.

"Second Chance" Trade Test

AIRMEN who just fail to reach a pass standard in the tests which follow trade training will in future be granted a provisional pass, and receive about two months' extra training "on the job" at an R.A.F. station. After this period they will receive another test. The object of this new system is to avoid clogging the training machine, and prevent potentially useful tradesmen from being relegated to lower trade groups.

M.U. Workers Meeting

ABOUT 230 representatives of 10,000 R.A.F. Maintenance Unit workers throughout Britain met at Swindon (Wilts.) on Sunday, December 12th, and at the end of a three-hour meeting decided to organize a national petition to change their status from that of "dilutees" to skilled men.

Australian Air Apprentices

PHOTOGRAPHS at the foot of this page show some of the activities of apprentices at the Royal Australian Air Force School at Wagga, New South Wales. The school is modelled on the lines of the R.A.F. apprentices' school at Halton, and is the first of its kind in the Dominion Air Forces. The first intake of recruits—aged between 15 and 17—began their three-year course at the school twelve months ago, and on passing-out, the majority will be posted to R.A.A.F. units, although a number of apprentices will be able to take University engineering degrees. It is eventually intended that graduates from the school, which has a capacity of 450, will supply half the strength of the R.A.A.F.

During their training, apprentices receive pocket money only, rising from 5s to 15s weekly. Their entire upkeep is paid for, including the cost of laundry and toilet gear. They have separate quarters and mess from the remainder of the station. The boys are entered on a twelve-year engagement, and Australian trade unions have agreed to recognize them as qualified technicians if they leave the Service at the end of this period.

"Thor II" Far Eastern Tour

THE R.A.F. Empire Air Armament School's Lincoln, *Thor II*, will leave Manston on January 18th for a five-week tour of R.A.F. units in Egypt, the Sudan, East Africa, Aden, Ceylon and the Far East. It will carry an inspection team drawn from the Ordnance Board and Government research and inspection departments. The purpose of the visit is to assess the life that may be expected from various explosives after service storage and handling in tropical climates, and to advise on the suitability of explosive stores, components and packages. In addition, it should be in a position to estimate the accuracy of accelerated climatic trials made in the United Kingdom. Leader of the Ordnance Board team will be G/C. F. C. Beresford-Peirse, and the aircraft will be captained by W/C. C. T. Weir, D.F.C.

Thor II has flown about 100,000 miles on liaison flights to various parts of the Commonwealth and in the U.S.A. since it replaced the original *Thor*, a Lancaster, in 1946. The coming tour will cover about 20,000 miles.

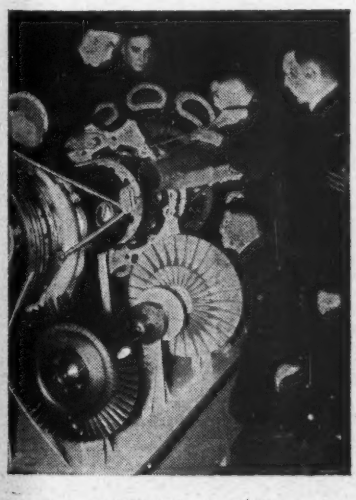
Air Firing Memorial Trophy

AN inscribed bronze plaque, to be known as the Imshi Mason Memorial Prize for Air Firing, has been accepted by the Air Council from Mrs. Teresa Mason, of Blackpool, for presentation to the Royal Air Force Mediterranean and Middle East Command in memory of her son, S/L. E. M. Mason, D.F.C., who was killed in action on February 15th, 1942, while leading Nos. 94 and 112 Squadrons against the enemy in the Middle East. The trophy will be competed for annually by flying squadrons in the Command and will be awarded to the squadron considered to have achieved the best results in weapon efficiency.

The late S/L. Mason, who was known in the Desert Air Force by his Arabic nickname "Imshi," was awarded the D.F.C. for his gallantry in the desert on January 26th, 1941, when he attacked a formation of nine enemy aircraft about to make an onslaught on our forward troops and in seven or eight minutes shot down three of them.

Auxiliary Appointment

WING COMMANDER L. W. M. MODLEY, O.B.E., G.M., has been appointed to command No. 3513 (County of Devon-Plymouth) Fighter Control Unit, R.Aux.A.F., which is located at Raglan Barracks, Plymouth. W/C. Modley began flying with the R.A.F. in



R.A.A.F. "HALTON": (Left) Apprentices of the R.A.A.F. School at Wagga (see paragraph on this page) find much to interest them in an "exploded" Derwent I turbojet. The Beaufort and Beaufighter "graveyard" (shown on right) is rich in instructional material for the apprentices.

Service Aviation . . . . .

July, 1927, and transferred to the reserve from July, 1932, until the outbreak of war, when he resumed flying for a further two years. Gallantry in rescue attempts after three different aircraft crashes earned him the O.B.E. and George Medal, in September, 1943, and October, 1944, respectively.

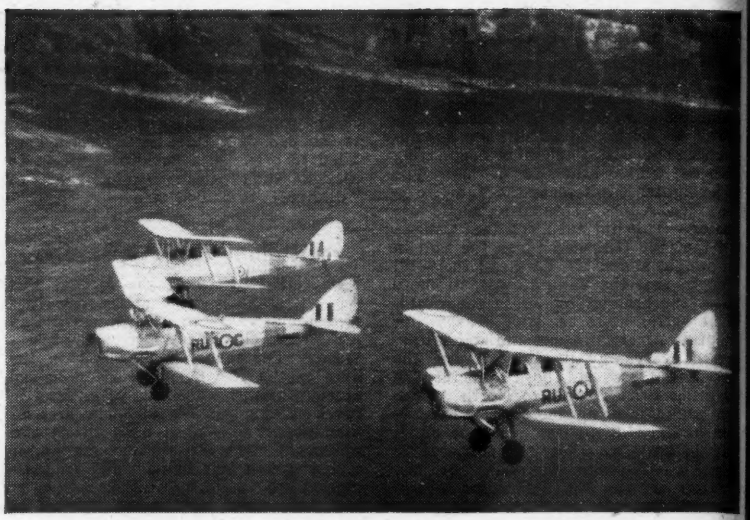
V.I.P. at Wolverhampton

AN airborne Santa Claus is an annually popular subject for cartoonists, air-minded and otherwise, and his recent flights of fancy have been no less frequent than in previous years. It is learned from No. 25 Reserve Flying School of the R.A.F.V.R., however, that the legend lately became reality, when Father Christmas himself touched down at Wolverhampton in the School's Anson I. He was welcomed by sixty children—thirty from local Cottages Homes and an equal number of Reservists' children—whom he led to the mess for a tea party, and presentation of toys. Some of the children transmitted their choice of gifts to the Anson through the R/T, and a recording of "Operation Reindeer" as the occasion was officially styled, was broadcast by the B.B.C.

Canadian Jet Leakage

WE have received a letter from Charles W. Cain referring to the paragraph in the issue of *Flight* for December 16th, in which his name was mentioned. Mr. Cain informs us that he was not the author of the article in *Aviation Week* in which a new Avro twin jet fighter XC-100 was prematurely described. We are happy, therefore, to correct any misapprehension that may have been caused by the report emanating from Canada.

It may be remembered that A.V-M. W. A. Curtis, Chief of the Canadian Air Staff, stated in Montreal recently that an official investigation was being made into the whole subject of the leakage.



TIGER TRIO: A pleasing reminder of summer days, in the form of three Tiger Moths of the Manchester University Air Squadron over the Irish Sea near Llanbedr, N. Wales, where the Squadron held its annual camp last August.

R.A.F. Permanent Commissions

GENERAL DUTIES BRANCH.

Wing Commander: E. P. M. Fernbank, D.F.C.

Squadron Leaders: A. Aldridge, P. C. Bargh, D.F.C., G. K. Birch, D. K. Hayes, D. MacGregor, D.F.C., G. A. Sinclair, W. D. Smith, D. M. Taylor, D.F.C., J. D. W. Willis, A.F.C., M. J. B. Young, D.F.C.

Flight Lieutenants: J. R. Alexander, D.F.C., D.F.M., J. N. B. Boyd, R. J. Brain, G. K. Busball, J. L. R. Coleman, D.F.C., R. K. F. Collyer, H. E. Cowen, E. W. Cropper, J. J. Doyle, T. P. Fargher, D.F.C., I. Forbes, D.F.C., I. M. Harper, L. W. Harris, D.F.C., C. K. Hayne, V. A. Hester, D.F.C., D. F. W. Hinton, D.F.C., V. E. Long, T. A. McCulloch, J. J. McNair, J. K. Maddison, R. E. B. Manson, B. R. Marks, D.F.C., A.F.C., W. Marshall, A. H. Mawer, D.F.C., G. B. Mercer, D. J. Murphy, D.F.C., W. B. B. Naples, J. Oliver, G. Ottea, J. B. Phillips, P. Reynolds, D.F.C., J. H. Rogers, K. Scholes, D. R. Simmons, H. G. Slade, E. M. Sparrow, D.F.C., R. J. Street, E. H. Turner, W. Tyler, D.F.C., O. E. Willis, J. W. Yates, D.F.C.

Flying Officers: E. J. Aedy, E. F. F. Budworth, J. B. D. Edenborough, J. D. Gregory, B. Jenkins, A. Ludlam, A. A. V. Maxwell, G. E. Mott, D.F.C., D. C. H. Rex, D.F.C.

TECHNICAL BRANCH.

Squadron Leader: E. F. Thornicroft, A.F.C., D.F.M.

Flight Lieutenants: E. Barrett, L. Bates, T. H. Brown, A. J. Churchward, G. S. Gough, D. Hill, W. J. Hemphill, H. W. Martin, A. E. Oldham, P. M. Passmore, A. G. Power, A. H. Streeter, R. J. E. Walker, L. H. Warsopp, V. Willis, R. Williams.

Flying Officers: R. E. Course, A. L. Murray-Rochard, R. H. Street, D.F.M., F. G. Will.

EQUIPMENT BRANCH.

Flight Lieutenants: C. A. A. Davis, B. E. Goodwin, G. Greenfield, J. W. Judge, S. E. Quinn, H. C. E. Weekes, W. N. J. Wombwell, W. H. S. Young.

Flying Officers: W. A. Brown, A. J. J. Cloke, P. A. Inman, J. A. Kearey, L. N. Keary, J. Rees, W. M. Thorpe, A. J. H. Wilson.

Pilot Officers: H. W. Keyte, E. F. Tovell.

SECRETARIAL BRANCH.

Squadron Leaders: S. J. Couban, F. W. Hillman, J. Wilson, M.B.E.

Flight Lieutenants: B. P. Baker, D.F.M., J. T. Ellison, E. N. Lewis, A.F.C., A.F.M., S. J. Palmer, D.F.C., P. R. Pennyfather, R. H. Petch, D.F.C., P. G. Sawyer, W. J. N. Wakefield, F. R. Walker.

Flying Officers: D. Beaumont, A. D. Cunniam, O. F. Egerton, R. Falconer, A. E. Gough, R. G. Hillen, J. E. Hornby, J. E. Janes, M. H. Johnson, W. J. Merrick, M.B.E., A. B. Morgan, F. H. Pepper, J. Rawcliffe, P. J. Vanoasbeck, L. A. Walker, H. W. Williams.

Pilot Officers: G. B. H. Morris, A. White.

R.A.F. REGIMENT.

Squadron Leaders: H. Corbett-Wilson, W. R. E. Wilson.

Flight Lieutenant: A. R. G. L. Turner.

Flying Officers: P. Hutchins, T. J. A. Loker, B. N. Robinson, P. B. Taylor.

CATERING BRANCH.

Flight Lieutenants: L. Benson, J. F. Compton.

Flying Officers: G. L. James, G. A. Monkman, J. Robinson.

SQUADRON STAFF: Members of Manchester University Air Squadron shown here are: (L. to R.) F/O. Ferry, D.F.C.; F/L. Shoreman; S/L. Howell, A.F.C.; F/L. Smythe; F/L. Bailey, and F/L. Gilpin, D.F.C.

Reunion

A **REUNION** Dinner for **No. 137 Staging Post (Bordeaux), No. 107 Wing (Paris), R.A.F.**, will be held at **Slater's Restaurant**, Oxford Street, London, on Saturday, January 15th, at 7.30 p.m. Tickets, price 15s, may be obtained from C. G. Ashby, Esq., "Mari Sine," 104, Great Chertsey Road, Twickenham.